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OGCB REPORT 66-B

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Report on the Applications Regarding the
Removal of Propane From the Provi 1



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REPORT ON THE APPLICATIONS REGARDING THE
REMOVAL OF PROPANE FROM THE PROVINCE BY THE
BRITISH AMERICAN OIL COMPANY LIMITED UNDER
THE GAS RESOURCES PRESERVATION ACT, 1956

MARCH 1966

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<<OIL AND GAS CONSERVATION BOARD

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Permit No. 18-1-1 was granted to British American on September 17, 1951, following an application which is reviewed in 1952 Report, para. 417. The permit authorizes the removal from the storage of 125,000 barrels per year of propane over a 30-year period which commenced November 1, 1951.

The application stated that "in order to fulfill the requirements of the propane export market in Japan, the applicant has made extensive arrangements to supply the industrial and domestic markets in Japan under Permit No. 18-1-1". The applicant's application for a permit authorizing the removal from the storage of propane for the market in Japan is discussed in para. 418 of this report and the appendices. It is stated that British American's request for cancellation of Permit No. 18-1-1 was not conditioned upon the outcome of the above application.

Description of the Application

The Board, having noted publicly the application under the

(1) Report on the Applications for Permits authorizing the removal of propane from the Province of Executive Order, Canada, 1951 and The British American Oil Company Limited under the Propane Prohibition Act, 1951. September, 1951.

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PART I - APPLICATION FOR TERMINATION OF PERMIT

The British American Oil Company Limited (hereinafter called "British American") applied for termination of Permit No. BA 65-1 as of September 30, 1966. The application was heard by the Oil and Gas Conservation Board on January 26, 1966. Mr. W. M. Winterton appeared for the applicant. There were no interveners.

Permit No. BA 65-1 was granted to British American on September 17, 1965, following an application which is reviewed in OGCB Report 65-11.⁽¹⁾ The permit authorizes the removal from the Province of 730,000 barrels per year of propane over a ten-year period which commenced November 1, 1965.

The application stated that "in order to fulfil its commitments to its propane export market in Japan, the applicant has made alternate arrangements to supply the industrial and retail markets now being supplied under Permit No. BA 65-1". British American's application for a permit authorizing the removal from the Province of propane for the market in Japan is discussed in Part II of this report and the appendices. Mr. Winterton said that British American's request for cancellation of Permit No. BA 65-1 was not conditional upon the success of the other application.

Disposition of the Application

The Board, having heard publicly the application under The

(1) Report on the Applications for Permits authorizing the Removal of Propane from the Province of Canadian Hydrocarbons Limited and The British American Oil Company Limited under The Gas Resources Preservation Act, 1956. September, 1965.

PART I - APPLICATION FOR TERMINATION OF PERMIT

Gas Resources Preservation Act, 1956, of The British American Oil Company Limited, is prepared, with the approval of the Lieutenant Governor in Council, to grant the application and terminate Permit No. BA 65-1, effective September 30, 1966, by order in the form shown in Appendix to Part I.

Mr. W. M. Winterrowd appeared for the applicant. There were no intervenors.

Permit No. BA 65-1 was granted to British American on September 17, 1963, following an application which is reviewed in OGC Report 65-11. The permit authorizes the removal from the Province of 30,000 barrels per year of propane over a ten-year period which commenced November 1, 1963.

The application stated that "in order to fulfil its commitments to the propane market in Japan, the applicant has made alternate arrangements to supply the industrial and retail markets now being supplied under Permit No. BA 65-1".

British American's application for a permit authorizing the removal from the Province of propane for the market in Japan is discussed in Part II of this report and the appendices.

Mr. Winterrowd said that British American's request for cancellation of Permit No. BA 65-1 was not conditional upon the success of the other application.

Disposition of the application

The Board, having heard publicly the application under the

(1) Report on the Application for Permit authorizing the removal of propane from the Province of Canada by British American Oil Company Limited and The British American Oil Company Limited under the Gas Resources Preservation Act, 1956. September, 1965.

APPENDIX TO PART I

IN THE MATTER of The Gas Resources
Preservation Act, 1956, being
chapter 19 of the Statutes of Alberta,
1956; and

IN THE MATTER of a Permit to The
British American Oil Company Limited.

TERMINATION OF PERMIT NO. BA 65-1

WHEREAS the Oil and Gas Conservation Board, on September 17, 1965, issued Permit No. BA 65-1 pursuant to The Gas Resources Preservation Act, 1956, to The British American Oil Company Limited; and

WHEREAS the Board, upon hearing an application dated December 10, 1965, by The British American Oil Company Limited, for the termination of the said Permit, is of the opinion that it is proper, desirable and in the public interest that the said Permit be terminated.

THEREFORE, the Oil and Gas Conservation Board, pursuant to the provisions of The Gas Resources Preservation Act, 1956, being chapter 19 of the Statutes of Alberta, 1956, and with the approval of the Lieutenant Governor in Council given by Order in Council numbered O.C. and dated , hereby terminates Permit No. BA 65-1, such termination to be effective on September 30, 1966.

MADE at the City of Calgary, in the Province of Alberta,
this day of A.D. 1966.

OIL AND GAS CONSERVATION BOARD

G. W. Govier
Chairman

PART II - APPLICATION FOR PERMIT

I INTRODUCTION

British American, by application made pursuant to The Gas Resources Preservation Act, 1956, asked for a permit authorizing it to remove from the Province of Alberta, 2,847,000 barrels of propane per year over a ten-year period commencing October 1, 1966. The application was heard by the Board on January 26 and 27, 1966, with Mr. W. M. Winterton appearing for the applicant.

The Gas Resources Preservation Act, 1956, provides that the Board shall not grant a permit for the removal of propane from the Province unless in its opinion it is in the public interest to do so having regard to the present and future needs of persons within the Province and the established reserves and trends in growth and discovery of reserves of propane in the Province. These matters to which the Board must have regard were fully discussed by the Board in OGCB Report 65-11 and also referred to more recently in OGCB 66-A.⁽¹⁾ Some of these matters were the subject of representations during the hearing, as will hereinafter appear. A complete review of the remainder of them at this time is not necessary.

(1) Report on the Application regarding the Removal of Propane from the Province by Pacific Petroleum Ltd. under The Gas Resources Preservation Act, 1956. January, 1966.

Qualification of Applicant

British American made its application as a person qualified to apply under section 5, subsection (1) of The Gas Resources Preservation Act, 1956. Its application stated that it produces or has the right to produce propane within the Province. Part of the propane which the applicant proposes to remove from the Province will be so produced by it. The qualification of British American was not a matter of question.

Date of Reserve Assessment and Period of Protection

British American in its submission presented an estimate of gas and propane reserves as of January 1, 1965. The Board's most recent estimate of gas reserves is of essentially the same date, that is December 31, 1964, and it has estimated propane reserves as of the same date.

The period for which the Board has assessed the requirements of the Province is 1966 to 1995 inclusive.

Permit No. BA 65-1 Commitment

As the Board is prepared to terminate Permit No. BA 65-1, as stated in Part I of this report, it has not included any volumes attributable to that permit beyond September 30, 1966, in calculating existing permit commitments.

II INTERVENERS

The following registered as interveners at the hearing
of the application for a permit:

<u>Interveners</u>	<u>Represented by</u>	<u>Abbreviation of name used in Report</u>
Canadian Hydrocarbons Limited	R. A. MacKimmie, Q.C. and F. T. Phillips	Canadian Hydrocarbons
Chemcell (1963) Limited	B. V. Massie, Q.C.	Chemcell

III SUBMISSION OF THE BRITISH AMERICAN OIL
COMPANY LIMITED

Application

British American applied to the Board for a permit authorizing it to remove propane from the Province

- (a) at a daily rate, averaged over each year, of 7,800 barrels per day,
- (b) at an annual rate of 2,847,000 barrels, and
- (c) to a total of 28,470,000 barrels during the ten-year period commencing on October 1, 1966.

The propane will be moved from Alberta to Vancouver by railway tank car or by pipe line, thence by tanker to markets in Japan. British American stated that its Japanese customer, Nikko Liquefied Gas Company Limited, has obtained approval from the Government of Japan to import from Canada for a period of ten years the volume of propane for which the permit is requested by the applicant.

Mr. C. Hay, President of British American, appearing as its policy witness, outlined the developments leading to the application. He said that British American, as a major producer of oil and gas in Alberta, became concerned as early as 1956 with problems arising from the production of propane, butanes, condensate and sulphur resulting from the large-scale production of gas. Its concern over the excess of propane intensified in 1963 and 1964, and it started to investigate the possibility of obtaining long term markets in Canada and

elsewhere. It found the Canadian market limited and the market in the United States not favourable to long term contracts. Mr. Hay stated that British American has entered into a long term contract with Nikko Liquefied Gas Petroleums of Japan to supply propane at the rate of 7,800 barrels per day for a ten-year period, and the building of facilities and equipment necessary for the carrying out of the contract is proceeding. As British American predicts a volume of propane surplus to Alberta's requirements for many years to come, Mr. Hay stated the Nikko project was desirable as providing the propane industry in Alberta with stability and a firm base from which it can grow.

The applicant intends to fulfil its sales commitments with wholly owned propane and with propane it will purchase under contract from other producers. British American has dedicated to its Japanese customer a substantial portion of the propane it owns at the Rimbey, Nevis, Pincher Creek, Turner Valley and Judy Creek processing plants. The remainder of the propane owned by British American produced at the plants has been reserved for sales in Alberta. The applicant said the dedicated volumes amount to some 3,200 barrels per day in 1966 and 1967, increase to about 4,100 barrels per day in 1972 and 1973, and decrease to approximately 3,900 barrels per day in 1976, the terminal year of the requested permit. British American submitted that its contracts with other producers owning propane at the Leduc-Woodbend, Harmattan, Crossfield-

Calgary, and Bonnie Glen processing plants will provide it with some 1,900 barrels per day in 1966, 1967 and 1968, about 1,700 barrels per day in 1969 and 1970, 1,400 barrels per day in 1971, and 800 barrels per day during each of the remaining years of the requested permit. The total supply available to British American from all the sources mentioned will increase from 5,200 barrels per day in 1966 to some 5,600 barrels per day in 1969 and 1970 and will decrease thereafter to about 4,700 barrels per day in 1976. The applicant was confident that volumes of propane in addition to those owned or under contract will be available to meet its requirements of 7,800 barrels per day. British American indicated that, although contracts have not yet been signed, discussions with respect to the purchase of additional propane have been held with participants in the Rimbey, Carstairs, Sylvan Lake, Windfall and Carson Creek processing plants.

The applicant stated that the contracts it has signed with other propane producers are of two types: medium term five-year contracts expiring in 1971, and short term contracts containing terms and conditions that permit either the buyer or the seller to terminate the contracts before the terminal year of the requested permit.

The short term contracts are "open-end" contracts, being for a firm period of one or two years and thereafter automatically continuing from year to year unless terminated by either party. British American projected the volumes subject to the open-end contracts over the full term of the requested

permit.

At the hearing, British American offered for the Board's consideration a number of changes to the Board's policy and rules respecting the issue of permits for removal of propane from the Province. The proposals and a detailed discussion of them are presented in Section V of this report.

Reserves of Propane

British American estimated the potentially available reserves of propane in Alberta at January 1, 1965, to be 483.7 million barrels. The estimate, based on British American's estimate of the reserves of gas of 35.9 trillion cubic feet, consisted of three categories, as follows:

1. Propane reserves from fields on stream or under gas purchase contracts with existing or proposed propane recovery facilities.
2. Potentially recoverable propane reserves from processing or reprocessing gas from fields presently under active gas purchase contracts for removal from the Province.
3. Potentially recoverable propane reserves from fields now shut-in and not under gas purchase contracts.

The applicant also submitted an estimate of the propane reserves expected from gas to be discovered or to be developed in the future. British American adopted the Board's

estimate of the long term increase in growth of gas reserves of 2.5 trillion cubic feet per year presented in OGCB Report 64-11, the Board's most recent publication pertaining to this matter. The applicant, as stated on previous occasions, is confident that this growth will continue in the foreseeable future. In view of the ultimate gas reserves potential of the Province and the present level of established reserves, the applicant expects the long term growth rate will be sustained for at least ten years. This growth would provide a propane reserve of approximately 325 million barrels. For the purpose of its submission, however, the applicant accepted the practice of the Board, outlined in its OGCB Report 65-11, of using two years growth of gas reserves when assessing the reserves and requirements of persons in the Province. Although the applicant recognized that the Board uses the long term growth rate or the growth of the preceding two years, whichever is the lesser, it estimated the propane reserves corresponding to a gas reserve growth at the long term rate of 2.5 trillion cubic feet per year, or 5 trillion cubic feet, to be 65 million barrels, based on the average propane yield of all established gas reserves.

In summary, British American estimated the propane volumes potentially recoverable from reserves of gas in the Province of Alberta to be:

	<u>Propane Reserves at January 1, 1965</u>
From Established Gas Reserves	Millions of Barrels
(a) existing and proposed facilities	361.9
(b) processing or reprocessing of gas now being removed from Alberta	49.6
(c) from presently shut-in fields	<u>72.2</u>
	483.7
From two years growth of gas reserves	<u>65.0</u>
Total Potential Propane Reserve	548.7

Details of British American's estimate of reserves are presented in Appendix A.

Year by Year Availability of Propane

British American presented its estimate of the year by year availability of propane in essentially the same categories used in its reserves estimate.

Fields under contract with existing or proposed processing facilities were forecast by the applicant to contribute some 28,000 barrels of propane per day in 1966, increasing to about 33,000 barrels per day by 1969, and to remain at that level for the remainder of the permit period. Propane from fields presently shut-in and not under gas purchase contracts are expected by British American to contribute 700 barrels per day in 1967, increasing steadily to 4,900 barrels per day by 1976. British American estimated that the processing or reprocessing of gas under active gas purchase contracts

for removal from the Province will, starting in 1968, contribute 5,600 barrels of propane per day during each year of the requested permit. Fields in which the produced gas is being returned to the formation for pressure maintenance purposes, with existing or proposed recovery facilities, were forecast by the applicant to produce 4,600 barrels per day of propane in 1966, decreasing gradually to 2,400 barrels per day in 1976.

Summing all of the estimates results in a year by year availability forecast of some 32,000 barrels per day in 1966, increasing to about 45,000 barrels per day in 1969, and remaining essentially at that level during the remainder of the term of the requested permit.

Details of British American's estimate of the year by year availability of propane may be found in Appendix A.

Demand for Propane

1. Alberta Requirements

The British American forecast was substantially the same as that presented in April, 1965, and reviewed by the Board in OGCB Report 65-11.

The Alberta demand was considered under three categories: LPG distributors (including domestic, commercial, industrial and carburetion requirements), petrochemical feedstocks and miscible flood.

A study of Alberta's overall energy requirements was utilized to project LPG distributors requirements to 1976.

Approximately 90 per cent of distributors sales were estimated to be absorbed by residential and commercial customers, thus prime importance was accorded to developments in these markets, which were expected to exhibit substantial growth, but at a slower rate than in recent years. Industrial use of propane was not anticipated on a wide scale. Growth in the carburetion market was expected to be determined primarily by the use of propane as tractor fuel, with further penetration of the tractor market increasingly difficult to obtain. Beyond 1976, an overall growth of some 3 per cent was judged appropriate, having regard to future population growth and urbanization. LPG distributors demand was thus forecast to increase from 4,500 barrels per day in 1966 to 13,400 barrels per day in 1995. The sole difference between these numbers and those presented in April, 1965, is an additional 200 barrels per day, which conforms to an adjustment made by the Board in OGCB Report 65-11 to the British American forecast, reflecting some industrial and carburetion consumption originally classified by British American as miscellaneous demand, a category deleted in their current projection.

Petrochemical requirements were anticipated to grow by 5 per cent per year over the forecast period. During the years 1966 to 1976, the estimated requirements related directly to expected consumption by the Chemcell plant; the amounts involved in the later years of the forecast would

require at least one new plant. Petrochemical demand for propane feedstock was thus forecast to increase from 3,600 barrels per day in 1966 to 14,100 barrels per day by 1995.

British American adopted the Board's forecast of miscible flood requirements as published in the OGCB Report 65-11. It expressed the belief that these estimates reflected a realistic approach. Miscible flood demand was predicted to increase from 500 barrels per day in 1966 to 1,000 barrels per day in 1970 and to continue at that level until 1995.

In total, Alberta demand for propane was expected to increase from 8,600 barrels per day in 1966 to 28,500 barrels per day in 1995, resulting in overall thirty-year requirements of some 191 million barrels.

2. Permit Commitments

The British American tabulation of permit commitments related to the original Pacific Petroleum Ltd.'s Permit No. PP 62-1, the British American Permit No. BA 65-1, and the Canadian Hydrocarbons Permit No. CH 65-1. As reported in a preceding section, the Board is prepared to terminate the British American permit as of September 30, 1966, and the Pacific permit has been replaced by a new consolidated Permit No. PP 66-2. British American stated that its tabulation should be adjusted in the light of these changes.

Maximum permit commitments as adjusted rise from 11,300 barrels per day in 1966 to some 13,000 barrels per day by 1968 and decline to 1,700 barrels per day in 1987.

Overall permit commitments amount to some 88 million barrels.

In summary, the applicant forecast that total Alberta requirements and permit commitments would increase from 19,900 barrels per day in 1966 to 28,500 barrels per day in 1995, with a thirty-year total amounting to some 279 million barrels.

Surplus

British American submitted that, based upon its studies the reserves and the year by year availability of propane in Alberta exceed the thirty-year requirements of persons in the Province, the present permit commitments, and the additional volumes requested by it.

The applicant presented calculations to show that the three tests applied by the Board⁽¹⁾ to determine whether a removable surplus exists have been met.

An outline of the three tests, and British American's calculations, as adjusted by the Board to account for changes in permit commitments, follows:

First Test. Total reserves should exceed the estimated thirty-year requirements of the Province and the present permit commitments. A surplus of some 241 million barrels of propane has been projected by British American after satisfying the requirements and commitments. The details of the calculation are:

(1) See OGCB Report 65-11, pages 28, 29, 30.

<u>Potentially Recoverable Reserves</u>	<u>Millions of Barrels</u>
From established gas reserves	483.7
From two years growth of gas reserves	<u>65.0</u>
Total Reserves	548.7
Thirty-year Alberta requirements and present permit commitments	279.0
Present Surplus	269.7
Requested by British American	28.5
Surplus if application granted	241.2

Second Test. The year by year availability of propane should exceed the requirements of persons in the Province and the permit commitments. British American indicated that a surplus increasing from some 4,000 barrels per day in 1966 to about 14,000 barrels per day in 1969, declining thereafter to 11,000 barrels per day in 1976, the terminal year of the requested permit, would result after meeting the Provincial requirements, the subsisting permit commitments, and the application of British American.

Third Test. The reserves remaining at the end of the proposed removal of propane should exceed substantially the Alberta requirements and the present permit commitments for the remainder of the thirty-year period. A surplus of some 183 million barrels was estimated by the applicant to be available at the date the requested permit would expire. British American's calculation was made as follows:

	<u>Millions of Barrels</u>
Total recoverable propane reserves	548.7
Production during term of requested permit to end of 1976	172.0
Estimated propane reserves sold in gas stream prior to installation of recovery facilities	6.6
Propane reserves remaining at end of 1976	370.1
Total Alberta thirty-year requirements and present permit commitments	279.0
Requirements during term of requested permit to end of 1976	89.4
Requirements for remainder of thirty-year period (1977-1995)	<u>189.6</u>
SURPLUS	<u><u>183.3</u></u>

Summary

British American contended that the application should be granted since

- (a) the volume of propane to be removed from the Province pursuant to the application is surplus to the present and future needs of persons within the Province,
- (b) its removal would be in the public interest,
- (c) the propane reserves in Alberta are more than sufficient to meet Alberta's thirty-year requirements, the present permit commitments, and the permit applied for,

- (d) in each year of the term of the permit applied for, the potential propane supply in Alberta exceeds the Provincial requirements, the present permit commitments, and the permit applied for, and
- (e) the propane reserves remaining at the end of the period of the permit applied for exceed the Alberta requirements for the balance of the thirty-year period and the then remaining permit commitments.

IV SUBMISSIONS OF INTERVENERS

Canadian Hydrocarbons Limited

Canadian Hydrocarbons filed an intervention so that it would be entitled to cross-examine witnesses and to present argument with respect to the evidence presented and issues raised in presentation of the application.

In argument, Mr. MacKimmie stated that, while the Board had no jurisdiction over or responsibility for markets outside Alberta, he thought it quite within the public interest of Alberta that the Board see to it that the economic health of a company serving traditional neighbouring markets should not be prejudiced by the sale of the product to a foreign nation.

Mr. MacKimmie also referred to the applicant's recommendation that the rules regarding volumes under contract and their relationship to permit volumes be changed. He expressed the opinion that the rules recommended by British American would be less suitable for an applicant who is not a major producer and processing plant owner or who is seeking a permit for more than ten years. In this connection, Mr. MacKimmie argued that The Gas Resources Preservation Act, 1956, and the rules observed in its administration were unsuitable for propane. He contended that the calculation of reserves serves little purpose, as processing plants will not be built and specification propane will not be recovered until markets are available. Mr. MacKimmie also said that to buy propane

on a long term basis without a long term market entails pitfalls, and the present rules should be changed.

These matters are discussed further in Section V of this report.

Chemcell (1963) Limited

Chemcell cross-examined the applicant's witnesses, submitted some evidence of its propane requirements, and presented argument.

Mr. Relf, Assistant to the Manager, Manufacturing Services for Chemcell, presented Chemcell's estimate of its propane requirements, which showed them to increase from some 3,300 barrels per day in 1965 to 4,000 barrels per day in 1970. He stated that while Chemcell did not make a detailed study of its requirements beyond 1970, he considered the estimate made by the Board as presented in OGCB Report 65-11 to be realistic. All of Chemcell's present requirements for propane are obtained by pipe line from the Leduc-Woodbend, Judy Creek and Rimbey processing plants.

Chemcell opposed the granting of the application of British American in its present form. It contended that since the volumes of propane requested by the applicant are in excess of supplies which British American owns or has under contract, the application should not be granted. Using figures obtained from OGCB Report 65-11, Mr. Relf contended that no part of the deficiency between the applicant's requested permit amounts and the supplies now available to it

by ownership or under contract can be made up from the Leduc-Woodbend or Judy Creek processing plants without jeopardizing Chemcell's supply sources. He stated that at the present time Chemcell could not substitute another feed stock for the propane now being used in its plant, and "since the Leduc-Woodbend and Rimbey plants are connected by pipe lines to the Edmonton area market, it would be uneconomic and not in the public interest to allow these sources to be used for export, leaving local consumers to obtain their supplies from yet unconnected or undeveloped sources". Chemcell considered that "it would be a great economic disadvantage to it to be forced to go farther afield for its raw material requirements for propane". Mr. Relf argued that no removal from the Province of propane produced from the Rimbey, Leduc-Woodbend or Judy Creek processing plants should be permitted until it is apparent that local requirements are protected. In answer to a question put to him by the applicant, Mr. Relf agreed that there were a number of other processing plants in the Edmonton area producing propane which could be used as future sources of supply. However, he said, Chemcell has not attempted to contract for propane from the other processing plants since its present contracts are not subject to termination until 1969 and 1970.

Chemcell requested that the Board, if it considered it not in the public interest to restrict removal of propane

produced from particular plants, make any order authorizing removal from the Province subject to conditions similar to those set forth in clauses 6 and 8 of Permit No. BA 65-1, namely:

- (1) The permittee shall supply propane at a reasonable price to any community or consumer within the Province that is willing to take delivery of propane at the Rimbey, Leduc-Woodbend or Judy Creek gas processing plants, and that, in the opinion of the Board, can reasonably be supplied by the permittee.
- (2) If any community or consumer is willing to take delivery of propane pursuant to the above clause and agreement on the price to be paid for the propane cannot be reached, the price to be paid shall be determined by the Public Utilities Board on the application of an interested party.

Mr. Massie, in presenting argument on behalf of Chemcell, again urged the Board to protect Chemcell's sources of propane supplies. He said Chemcell was concerned that a scarcity of propane might develop and felt this was indicated by the number of applications being made for propane permits and by the surplus calculations based on present processing facilities, as they appeared in OGCB 66-A.

As is discussed in Section V of this report, Mr. Massie also expressed opposition to part of British American's

proposed rules regarding permit volumes. He opposed giving extended recognition to short-term contract and the setting of permit volumes in excess of volumes owned by or under contract to the permittee.

A detailed discussion of Chemcell's proposals and its views respecting certain aspects of the application is presented in Section V of this report.

V BASIS OF CONSIDERATION

Protection for Alberta Consumers

In OGCB Report 65-11 the Board outlined three tests which must be satisfied in protecting for Alberta's propane requirements and existing permit commitments. The first test as set out in the report involves comparison of the total propane reserves to the total thirty-year requirements. The second test involves a year by year supply-demand balance for the period of the requested permit and the third test is a comparison of the propane reserves remaining at the end of the term of the requested permit to the total requirements for the remainder of the thirty-year period.

In formulating the second test and as is discussed in detail in its earlier report, the Board limited the year by year supply-demand balance to less than thirty years primarily because a meaningful year by year propane production estimate was not considered to be practical for the full thirty-year period. At that particular time, the period for which a meaningful forecast could be prepared coincided more or less with the period of the requested permit. As a result, the Board set out as the second test a supply-demand balance for only the period of the requested permit. The Board has reconsidered the situation and believes a slight modification to this test is appropriate. The modification would extend the year by year supply-demand balance to coincide with the term of the longest existing permit to remove propane from

the Province. This change would, in turn, affect the third test and, in the Board's opinion, would permit a more meaningful appraisal of the propane surplus for the remainder of the thirty-year period than would result when the period of the supply-demand balance was as short as say ten or fifteen years.

Where a requested permit is for a period considerably shorter than the period analyzed in the modified second test, slight deficiencies well beyond the period of the requested permit would, in all likelihood, have no effect on the Board's decision with respect to the application. However, where a requested permit would result in deficiencies within a short period of time after the period of the requested permit, the Board would have to give serious consideration to the practicability of some means whereby propane could be stored or production deferred so that any such deficiencies could be reduced or eliminated.

Need of a Permit

1. Views of British American

At the opening of the hearing, Mr. Winterton referred to the regulations under The Gas Resources Preservation Act, 1956, by reason of which British American is not required to have a permit to remove its propane from the Province except for the propane that would be removed by pipe line.

Mr. Winterton and his witnesses expressed the reasons why, notwithstanding the regulations, British American had made its application. When the regulations permitting the

removal of propane, otherwise than by pipe line, were under review a year ago, it was indicated to industry that consideration was being given to the overall regulation of the removal of propane, and while the new regulations that followed did not stop the removal without a permit by other means than pipe line, a permit appeared to be desirable. Having a long term contract to sell propane, British American applied for a permit to ensure its ability to remove propane from the Province and also to maintain its position relative to others who might seek such permits if the regulations should change. The applicant said further that, because of the importance of the development of a foreign market for propane to industry in Alberta, it was appropriate for it to appear before the Board with its application. A permit to British American would give a measure of assurance to its customer.

Under cross-examination the applicant's policy witness, its president Mr. C. Hay, said that if a permit were not granted British American would go ahead with its project under the existing regulations.

2. Views of the Board

The present regulations⁽¹⁾ excluding propane removed otherwise than by pipe line from the application of the Act specifically provide that nothing therein precludes an

(1) Regulations Governing the Removal from the Province of Propane otherwise than by Pipe Line. Alberta Regulation 285/65.

application under section 5 for the removal of propane or a permit pursuant to such application.

The Board agrees with British American that it is suitable for one who proposes a long term movement of propane from the Province to seek a permit for this purpose, regardless of how the propane is to be removed. Moreover, the permit is necessary if the use of pipe lines is not to be precluded for the project.

Propane to be Purchased from Canadian Superior Oil Ltd.

One of the contracts under which the applicant will purchase propane for its project and about which evidence was submitted is a contract with Canadian Superior Oil Ltd., the operator of the Harmattan area processing plant. The volumes under contract were forty per cent of the estimated volumes produced at the plant which Canadian Superior has authority to market. Part of such propane will be owned by Canadian Superior and part by other owners, excluding Shell Canada Limited but including British American. In the case of pipe line shipments, the propane will be delivered and title pass at or near Burnaby, British Columbia, and in the case of tank car shipments at Didsbury, Alberta.

1. Views of British American

When the applicant's witnesses were asked how British American could apply for a permit covering propane that might not belong to British American when it left the Province, Mr.

Winterton stated that, until the Hydrocarbon pipe line was built, British American would be buying the propane in Alberta and its proposed permit should cover such propane. After the pipe line was built, the propane would be delivered by the seller at the British Columbia end of the line. At that time, British American could expect that its permit volumes could be reduced by the appropriate volumes, and if they were covered by another permit it would not affect the British American project, because, in effect it would have the same volumes.

2. Views of the Board

As long as the propane covered by the Canadian Superior contract is received by British American in Alberta, it will be the proper permittee for the removal of such propane. Unless and until the pipe line referred to is constructed and the propane owned or controlled by Canadian Superior is shipped through it, British American will purchase the propane in Alberta. The Board is prepared to consider this propane as a basis for a permit that may be granted on the subject application. If the permit is granted and in the future British American starts to acquire the propane from Canadian Superior at the British Columbia terminal of the proposed pipe line, British American would be expected to advise the Board so that any permit adjustment then appropriate may be made.

Relationship of Volumes under Contract to Permit Volumes

In OGCB Report 65-11, the Board considered the relationship of volumes under contract to permit volumes and matters arising therefrom. It enunciated the following six rules, which it stated it was prepared to apply until the development of the industry indicates the need of a change in policy:

1. The permit will specify maximum annual volumes only.

2. Specified volumes shall not exceed either those applied for or those which the Board expects to be recovered from the fields or processing plants from which the permittee may remove propane.

3. Where the permittee does not own or have under contract the full volumes applied for, the permit volumes shall, subject to rule 2 above, be

(a) for the first two years of the term of the permit, 167 per cent of the volumes for such years owned or under contract⁽²⁾, and

(b) for the third and subsequent years of the term of the permit, 110 per cent of the volumes for such years owned or under contract.

4. Where the permittee, at the time of his application, did not own or have under contract the full volumes applied for and subsequently obtains additional contracts for the

(2) This is equivalent to a requirement that an applicant own, or have under contract, for the first two years of the term of the proposed permit, 60 per cent of the quantity for which authorization for removal is sought.

purchase of propane from the processing plants named in the permit, he may, during the first 21 months of the term of the permit, request the Board to adjust the maximum volumes for the third and subsequent years. If the Board is satisfied with the additional contracts, it may, by stipulation and subject to rule 2 above, increase the volumes specified for the third and subsequent years by 110 per cent of the volumes made available in such years by the additional contracts, but, where the volumes applied for are uniform or declining over the term of the proposed permit, the volumes so increased normally shall not exceed the lesser of the volumes specified for the first two years of the permit.

5. If in any year, less than the maximum volume of propane for that year is removed, the balance cannot be removed later.

6. In calculating the permit commitment arising from a propane permit, the Board will add the maximum volumes specified in the permit for the balance of the term of the permit. If the calculation is made in the first 21 months of the term, or is made with respect to a proposed permit to determine its effect on the surplus, the volumes used for the third and subsequent years of the term will include any increases in volumes which the permittee could obtain by producing additional propane purchase contracts.

At the hearing of the subject application, British

American submitted that the rules were unsatisfactory, and proposed new rules in their place. It referred to the statement in OGCB Report 65-11 that the Board was prepared to apply the rules set out therein "until the development of the industry indicates the need of a change of policy".

British American stated that for the first time a ten-year contract for the sale of propane on a foreign market had been made, and this was a development requiring changed rules. One British American witness stated that the change was desired largely because the policy set out in OGCB Report 65-11 was, in the opinion of the applicant, too restrictive to begin with.

Several times the British American witnesses claimed, as an advantage of the proposed changes, that they would reduce the number of Board hearings.

The rules proposed by British American would leave the Board's rules 1, 2 and 6 unchanged but the remainder of the rules would be as follows:

3. (numbered 1 by British American) That an applicant own or control 50% of the total amount of the propane to be removed from the Province.

4. That where the permittee does not own or have under contract the full volumes applied for the permit volumes shall be,

(a) for the first two years of the term of the permit, 200% of the volumes for such years

owned or under contract - with permittee being entitled during the first 21 months of the term of the permit to request the Board to adjust by stipulation up to the permit requirement from any source whatsoever; and

- (b) for the third and subsequent years of the term of the permit the maximum volume to be 110% of the total volume owned and under contract at the end of the second year up to a maximum of the permit requirement. Upon receiving notice of termination of any supply contract permittee shall promptly advise the Board but shall have the right, within thirty days of the date of termination of such contract, to replace, by stipulation, a like quantity of propane from any source.

(Represented by British American in Exhibit 4 as a revision of Rule 3, but appearing to be a revision of Rules 3 and 4).

5. If in any year less than the maximum volume of propane for that year is removed, the balance cannot be removed later, provided that if a permittee's annual volume for any year is reduced by the Board as a result of any emergency then the volume so reduced may be removed when the emergency is over. (Revision of Board's Rule No. 5).

1. Open-end Contracts

Views of British American. British American urged the Board to accept open-end contracts under which it purchased propane as showing that it would have a supply of propane in the amounts each year provided for by such contracts for the term of the proposed permit. This submission affected its other recommendations regarding the rules. An open-end contract for the purposes the applicant proposed would be one which has firm provisions for the sale of propane for a period of at least a year and which would continue in operation after that unless terminated by notice by one of the parties. British American submitted that permit volumes should include volumes for which the permittee has open-end contracts, subject to reduction if an open-end contract is terminated and is not replaced by a contract for equivalent supplies, possibly from another source.

The applicant stated that short-term contracts are normally used in the industry for sale of propane. Such sales are more comparable to sales of liquid hydrocarbons than to sales of gas. The applicant's witnesses expressed the opinion that, although the historical experience and analogy to which they referred both involved conditions of surplus, the preference for short-term sales would continue even when demand for the product was greater. Although several of the propane contracts referred to at the hearing were for rather longer terms -- British American's contract

with a Japanese purchaser, Chemcell's purchases, and the Judy Creek contracts -- nevertheless British American stated the majority of propane contracts, in number if not in volumes covered by them, were for periods in the range from six months to a year.

For British American long-term contracts with producers of propane would be desirable. However, it said it had limited success in obtaining such contracts for volumes to meet its commitments because of reluctance of producers to change from short-term contracts. The applicant's witnesses stated that producers preferred the short-term contracts because propane prices have tended to vary, and because in recent years the price has usually been low due to the surplus of propane. Producers have not been too concerned about obtaining long-term contracts for propane, as this product has been ancillary to gas and there has been little on which to base a long-term price.

Asked if a change of rules to accept short-term contracts would be fair to others interested in the removal of propane from the Province who had directed their efforts to obtaining long-term contracts, the applicant's witnesses said it would be fair as the rules it proposed would apply to everyone.

Views of Interveners. In presenting argument on behalf of Chemcell, Mr. Massie stated that the applicant should only have a permit to remove on a long-term basis that

propane over which it had long-term control and should remove the propane it acquired under short-term contracts under the regulations without a permit. He suggested the applicant "is wanting the best of both sides". He viewed the applicant's statement that producers did not like to tie themselves to today's price as an indication of shortage.

Views of the Board. The question of the treatment to be given to open-end contracts is not one of change in the present rules, but it must be decided before the proposed rule changes can be considered. The effect of open-end contracts determines the volumes of propane under contract, and once these volumes have been determined the application of the rules may be made. However, the rules proposed by British American assumed the acceptance of open-end contracts as showing that it would purchase propane for the duration of the proposed permit.

At times during the hearing it appeared to the Board that short-term contracts and open-end contracts were spoken of as if they were substantially the same, and this undoubtedly was loose use of terminology rather than an indication that these types of contracts are the same. Where a contract for the sale of propane is for a definite term, whether it be two months or twenty years, then the Board must regard the sales as ending when the term ends. On the other hand, where there is an open-end contract, the sale of propane under it will continue until one of the parties takes an

active, positive step to bring about its termination. In absence of evidence that an open-end contract will be terminated the Board is prepared to accept the contract⁽³⁾ as being for the term of a proposed permit, but subject to the condition that, whenever notice of termination of such a contract is given, the permittee shall promptly advise the Board and the Board, by stipulation, shall reduce the permit volumes accordingly, subject to possible substitution which will be discussed under the heading "Volumes for the third and later Years of a Permit".

2. Ownership or Control of 50 per cent of total Amount

Views of British American. British American's first new rule was enlarged upon and clarified by the testimony of its witnesses. Under it, the applicant for a permit would be required to own or have under contract fifty per cent of the volumes applied for for each year of the proposed term of the permit. In calculating the volumes, open-end contracts would be considered as being for the proposed permit term. (The proposal would change the present rule 3, which covers the equivalent matter, in two respects; clause (a) of the present rule allows permit volumes in the first two years of 167 per cent of the owned and contract volumes, rather than the 200 per cent which would be allowable under the proposed rule, and the present rule requires that the applicant have owned or contract volumes only for the first two years of the permit rather

(3) Subject to the qualification that the contract must be firm for at least one year.

than for the full permit term.)

British American presented the new rule as a minor change that would offer it a little more flexibility, but agreed that, by its application to the third and subsequent years of a permit, it was more restrictive than the present rule.

Asked if the change of rule might not prevent the consideration of other applications during the first two years of a permit where the surplus was small, the applicant's witnesses said that this was possible, but at the present time its supply figures were more optimistic than the Board's. They also stated under examination that with the proposed rule, an applicant would likely be a producer or have an interest in a plant.

Views of the Board. With regard to the relationship between permit volumes and volumes owned or under contract, while the percentage used, be it 167 or 200, for the permit volumes that will be allowed in the first two years in relationship to the volumes under contract, is necessarily a judgment figure, the Board thinks that the 167 per cent is a reasonable figure and one that gives some assurance of supply for the first years of a permit. Further the Board is of the opinion that an increase in this percentage would unjustifiably tie up further propane reserves during the first two years of a permit to the extent that it could exclude other applicants where there was not a substantial surplus.

With regard to the part of the proposed rule that would require the applicant to own or control the basic volumes for the full term of the proposed permit, this could be much more onerous upon an applicant whose position was different from that of British American or whose application was for a permit for a longer term.

For the above reasons the Board is not prepared to make the changes in this rule advocated by British American.

3. Volumes for the third and later Years of a Permit

Views of British American. Under the applicant's proposed rule 4, the volumes for the third and subsequent years would be set at the end of the second year on the basis of the contract volumes the proposed permittee has obtained to that time, much the same as under the Board's rules. However, under the rules proposed by British American, open-end contracts would be given the effect described above, and if any should be terminated during the term of the contract, the permittee would advise the Board and would have the opportunity to replace, by stipulation, a like quantity of propane from any source.

British American said that the present rules, even with the 110 per cent provision, were too inflexible, and did not recognize the extensive practice in industry of exchanging and trading propane. A permittee needs the right to make substitutions based on such exchanges and trades to adjust to plant shut-downs and fluctuations in

demand, to make up volumes when contracts are terminated, and to place him in as good a position as a non-permittee dealing in propane. It would also make it easier for the permittee to supply local consumers.

The British American witnesses thought any exchange provision in a permit would help to some extent but that the substitution provision they asked in its full effect was needed. They said there was little danger that the Board would not be advised of changes in source of supply, because the permittee would not place his permit in jeopardy. The Board, they said, would retain the control necessary for the purposes of the Act by maintaining a total surplus.

When questioned as to the desirability of a rule that would enable a permittee to remove propane from fields not named in his permit without others who depended on such propane being able to express their views, the witnesses said the important thing was that the person taking the propane have it under contract and that, in any event, considerable amounts of propane have been going out, uncontrolled, by tank car. Also under examination, the witnesses said that the proposed rules would help the permittee to pick up supplies of propane.

Views of Interveners. Chemcell's witness, Mr. J. A. Relf, upon cross-examination, stated that he was quite aware that "swap-outs" or exchanges of propane occurred,

but he could not see how he could talk about an exchange on a long term basis. He said he would have to know the details before he could be either for or against an exchange that might on occasion be proposed. In presenting argument on behalf of Chemcell, Mr. Massie opposed British American's proposed change which would enable a permittee to obtain a change in its source of propane without a hearing, as it could make inroads in Chemcell's supplies and would be contrary to section 7 of the Act.

Views of the Board. The Board believes that, with the acceptance of open-end contracts as indicating the acquisition of propane for the term of the permit, some provision for the substitution of contracts is suitable and desirable. It is prepared to give a permittee whose contract has been terminated an opportunity to show that he has made an arrangement to acquire propane produced at a processing plant named in the permit to replace the volumes to be lost through termination of contract. The Board believes that a replacement from a wholly new source could adversely affect the interests of others and, in an exceptional case, perhaps affect a public interest, and it is not prepared to allow such a replacement by stipulation by the Board. In a case where a permittee enters into a contract for propane from a processing plant not named in its permit the Board believes the matter should be dealt with as an application to amend the permit.

To facilitate the short-term exchanges of propane the Board is prepared to include in the terms and conditions of a propane permit, a clause similar to the exchange provision that appears in many of the gas permits, with such modifications as seem desirable for this purpose.

4. The Proviso proposed for Rule 5

Views of British American. British American suggested that where a permittee's annual volume for a year is reduced by the Board as the result of any emergency then the volume so reduced may be removed when the emergency is over. It did not, however, present evidence in support of this suggestion.

Views of the Board. The propane permittee in his operations enjoys a flexibility not available to the gas permittee in that he is subject only to an annual limitation, and not to a maximum daily rate. Further, if the volume authorized for a year was not removed in the year, this same propane, unless stored, would not be available in the ensuing year. In light of these views, the Board is not prepared to make the change requested.

5. Position of the Board in respect to
Policy Changes

The opportunity of interveners to present detailed and well developed views on need of a change and on the specific rule changes proposed by British American was substantially reduced by British American's failure to acquaint them, or

the Board, with the recommended rules until after the hearing was in progress.

The Board appreciates the effort British American has made in developing its recommendations for improvement of the Board's rules regarding permit volumes, and it has made a careful study of the proposed new rules and the general effects that could be anticipated from their application. As set out above, the Board is accepting the British American recommendation regarding open-end contracts, and is accepting in part the recommendation regarding replacement of terminated open-end contract volumes.

The Board is prepared to consider further change of this policy when the development of industry indicates it is needed.

Regional Protection or Protection of a particular Supply

1. Views of Chemcell

In Chemcell's submission, described more fully in Section IV of this report, it asks that no removal from the Province of propane produced from the Rimbey, Leduc-Woodbend or Judy Creek processing plants be permitted until it is apparent that local requirements are protected. Alternatively, Chemcell asked that, if the Board will not restrict removal from particular plants, it make any permit that might be granted upon the application subject to the usual term or condition pursuant to clause (e) of section 9 of the Act requiring the permittee to supply any community or

consumer within the Province that is willing to take delivery at any of the named processing plants.

2. Views of British American

In tabulating the sources from which it expected to take propane for its project, British American reserved 1500 barrels per day from its own or controlled production to serve local customers. Included in this amount was 1200 barrels per day to fulfil the applicant's contract with Chemcell.

Mr. Winterton stated that approximately 14,000 barrels per day of propane are being produced from plants in the Edmonton area, which offer excellent potential supply points for consumers in that area, including Chemcell. He said that Chemcell did not appear to have made any effort to obtain propane from any processing plant other than those referred to in its intervention and he submitted that Chemcell was unreasonable in insisting that all its supplies must come from those processing plants.

3. Views of the Board

The Board would not consider the granting of a permit if, in its opinion, that might result in there being insufficient propane for the present and future needs of persons within the Province. Such needs include those of Chemcell.

As stated in OGCB Report 65-11, the Board in preparation of that report gave consideration to whether

the balancing of production and requirements should be made on an area or Province-wide basis. It was then convinced that a detailed area analysis was not warranted because propane is produced in various areas of the Province and marketing facilities exist over essentially the entire Province. The Board still holds to this rule, as a general one, but believes that a case could arise where it would be desirable, in the public interest, to provide regional protection.

The Board agrees with Chemcell that its alternative proposal is desirable, and that any permit arising from the subject application should contain a clause of the type authorized by clause (e) of section 9 of the Act.

VI FINDINGS

The Board having heard publicly the application under The Gas Resources Preservation Act, 1956, of The British American Oil Company Limited and having studied the evidence submitted by the applicant and the interveners at the public hearing of the application, and having regard to the advice of its staff, to its own knowledge, and to its responsibility under the Act, finds as follows:

1. IN THE MATTER OF THE RECOVERABLE RESERVES AND
 THE YEAR BY YEAR AVAILABILITY OF PROPANE IN
 ALBERTA

The Board estimates the total recoverable reserves of propane in Alberta as of December 31, 1964, (being the date of reference of the Board's last comprehensive review of the reserves of propane and of gas as well as that of the applicant's review) to be some 398 million barrels, of which some 334 million barrels will be recovered from existing processing plants and some 64 million barrels will be recovered by more complete processing of gas if there is sufficient demand for propane. The corresponding estimates made in January, 1966, and presented in report OGCB 66-A are some 394, 330 and 64 million barrels respectively.

The Board estimates the production of propane from existing and Board approved processing plants will be approximately 31,000 barrels per day in 1966, will range from 34,000 to 35,000 barrels per day during the period 1967 to 1973 inclusive,

and will then decline gradually to about 16,000 barrels per day by 1987. The Board further estimates that if there is sufficient demand for propane, additional recovery will occur at processing plants to be constructed in the future or by the installation of deep-cut recovery facilities at existing plants, in an amount of about 8,000 barrels per day commencing in 1968. Combining these two estimates gives a year by year availability of propane of some 31,000 barrels per day in 1966, 35,000 barrels per day in 1967, 41,000 to 42,000 barrels per day during the period 1968 to 1978, and declining gradually to about 22,000 barrels per day by 1987.

Details of the evidence and the Board's estimates of reserves and year by year availability of propane are presented in Appendix A.

2. IN THE MATTER OF THE TRENDS IN EXPLORATION AND
 THE GROWTH OF RECOVERABLE RESERVES AND YEAR BY
 YEAR AVAILABILITY OF PROPANE IN ALBERTA.

The Board has not altered its estimate of the growth of reserves of gas expected during a two-year period (4.3 trillion cubic feet), or of the reserves of propane associated with it (43 million barrels) presented in OGCB Report 65-11 and report OGCB 66-A.

The Board estimates the year by year availability of propane from this growth in reserves to commence in 1970 at a low rate and to increase to about 4,000 barrels per day by 1987.

Details of the evidence and the Board's estimates are

presented in Appendix A.

3. IN THE MATTER OF THE PRESENT AND FUTURE
 REQUIREMENTS OF ALBERTA FOR PROPANE AND
 THE PRESENT PERMIT COMMITMENTS

The Board estimates the requirements of Alberta for propane for the thirty-year period, January 1, 1966, to December 31, 1995, to be some 221 million barrels. The present estimate is unchanged from that presented in OGCB Report 65-11 and report OGCB 66-A.

With the increase in the quantity of propane Pacific Petroleums Ltd. is authorized to remove under Permit No. PP 66-2 and the termination on September 30, 1966, of Permit No. BA 65-1, if approved by the Lieutenant Governor in Council, the permit commitments adjusted to January 1, 1966, have increased from some 71 million barrels to some 88 million barrels.

Details of the evidence and the Board's estimates of Alberta's requirements and the present permit commitments are presented in Appendix B.

4. IN THE MATTER OF THE MEETING OF THE 1966-1995
 REQUIREMENTS OF ALBERTA TOGETHER WITH THE PRESENT
 PERMIT COMMITMENTS, AND THE RESULTING SURPLUS.

Having regard to the 334 to 398 million barrels of propane estimated to be recoverable from established gas reserves, the 43 million barrels of propane estimated to be recoverable from two years growth of gas reserves, the thirty-year requirements of Alberta of 221 million barrels of propane, and the present

permit commitments of 88 million barrels, the Board finds that there is an overall surplus of 68 to 132 million barrels of propane. The 68 million barrels is based on existing facilities and the 132 million barrels on future facilities.

The Board estimates that after providing for the annual requirements of Alberta and the subsisting permit commitments there will be a propane surplus, based on production from existing facilities, of 11,000 barrels per day in 1966 which will increase to some 13,000 barrels per day in 1967 and decline gradually to 1,000 barrels per day by 1979. A deficit of some 2,000 barrels per day is indicated in 1980, increasing to approximately 7,500 barrels per day in 1985 to 1987. If allowance is made for future processing facilities, the surplus in 1966 and 1967 is unchanged, but then increases to some 19,000 barrels per day in 1968, declines thereafter to a balanced position by 1984 and remains at essentially this level to 1987. As indicated in its two previous propane reports, the Board places greater weight on the latter figures and is satisfied that the deficiencies indicated by restricting the analysis to existing facilities will not materialize.

The Board estimates that the reserves of propane in 1987, at the end of the term of the longest subsisting permit for the removal of propane, will be 129 million barrels with existing facilities and 137 million barrels including future facilities. Alberta's requirements for the remainder

of the thirty-year period, 1988 to 1995, are some 80 million barrels, thus indicating a surplus above the requirements of the remainder of the forecast period, of 49 to 57 million barrels.

Details of the evidence and the Board's analysis of these matters appear in Appendix C.

5. IN THE MATTER OF THE BRITISH AMERICAN OIL
 COMPANY LIMITED'S REQUEST FOR AUTHORIZATION
 FOR THE REMOVAL OF PROPANE AND THE SURPLUS
 WHICH WOULD RESULT IF A PERMIT IS GRANTED

The Board finds that if the British American application were granted, the overall reserves of propane surplus to the thirty-year requirements of the Province and the permit commitments would be some 39 million barrels based on existing facilities and 103 million barrels based on future facilities.

The Board finds that after providing for the annual Alberta requirements, the subsisting permit commitments, and the volumes requested in the application, the year by year surplus of propane, based on production from existing facilities and including a two-year growth of gas reserves, would be 5,000 barrels per day in 1967 decreasing to 500 barrels per day in 1970. A deficit of 700 barrels per day would occur in 1971, increasing to some 4,000 barrels per day by 1976. A surplus of about 3,000 barrels per day is estimated in 1977, after the expiry of the permit currently requested by British American; this would decrease to 1,000

barrels per day by 1979. A deficit of some 2,000 barrels per day would again occur in 1980, increasing to about 7,500 barrels per day by 1985 to 1987. If allowance is made for future processing facilities, the surplus in 1967 is unchanged, but would then increase to some 11,000 barrels per day in 1968, decreasing gradually thereafter to about 4,000 barrels per day by 1976. After the permit requested by British American expires, the surplus in 1977 would be approximately 11,000 barrels per day, decreasing to a balanced position by 1984, and would remain at essentially that level to 1987. As in the case of Finding 4, the Board places greater weight on these latter figures and is satisfied that the deficiencies indicated by the former figures would not materialize.

Should the application be granted, the reserves remaining in 1987 at the end of the term of the longest subsisting permit for the removal of propane, and the surplus over the remaining thirty-year requirements of Alberta and the subsisting permit commitments, would be unchanged from the 129 to 137 million barrels of reserves and from the 49 to 57 million barrels of surplus referred to in Finding 4.

The Board concludes that the application could be granted without adversely affecting the protection for Alberta's requirements and the subsisting permit commitments.

Details of the Board's analysis relating to these matters are presented in Appendix D.

6. IN THE MATTER OF THE VOLUMES OWNED OR UNDER
CONTRACT AND THE PERMIT VOLUMES REQUESTED BY
THE BRITISH AMERICAN OIL COMPANY LIMITED

The Board finds that, over the term for which British American requests authority to remove propane, it owns or has under contract in each year some 60 to 70 per cent of the propane it proposes to remove. Under the Board's policy for the issuance of permits for the removal of propane as discussed in OGCB Report 65-11 and in Section V of this report, a permit could be issued, with the approval of the Lieutenant Governor in Council, authorizing the removal of surplus propane up to the full volumes requested by British American for the first two years of the proposed period of removal. For the third and subsequent years, a permit could be issued authorizing the removal of volumes equivalent to 110 per cent of those actually owned or under contract to British American. The volumes in these subsequent years would be subject to increase by stipulation by the Board upon the Board being satisfied within twenty-one months after the commencement of the term of the permit that British American has additional volumes under contract. The volumes for each year specified in the stipulation would be the lesser of the volumes originally applied for or the volumes equivalent to 110 per cent of those which the Board is satisfied British American owns or has under contract in the processing plants named in the permit. The volumes British American now owns or has under contract and the

minimum and maximum volumes that could be included in a permit are shown in Table D-1.

7. IN THE MATTER OF THE DISPOSITION OF THE
 APPLICATION OF THE BRITISH AMERICAN OIL
 COMPANY LIMITED

All things considered, the Board is prepared, with the approval of the Lieutenant Governor in Council, to issue a permit to The British American Oil Company Limited authorizing it to remove from the Province the volumes of propane shown in Table D-1, the permit to be in the form shown in Appendix E and subject to the terms and conditions therein contained.

Respectfully submitted,

G. W. Govier, P. Eng.
Chairman

A. F. Manyluk, P. Eng.
Deputy Chairman

Dated at Calgary, Alberta
this 23rd day of March, 1966.

APPENDIX A

THE PRESENT AND FUTURE PRODUCTION AND THE RESERVES OF PROPANE IN THE PROVINCE OF ALBERTA

Future Production of Propane

1. Production of Propane from Established Gas Reserves

(1) Views of British American

During the hearing of the British American application, evidence as to the expected propane production from established gas reserves for the period 1966 to 1976 inclusive was given on behalf of the applicant by A. Janisch, J. B. Dales and J. M. Beddome. British American based its forecast on its own estimate of gas reserves as of January 1, 1965.

In the British American submission, propane production from established gas reserves is expected to increase from a 1966 production rate of some 32,000 barrels per day to about 45,000 barrels per day by 1969 and to remain at that level through 1976.

The forecast submitted by British American was prepared generally in the following manner:

1. The propane supply from oil and gas fields now producing or under gas purchase contract with existing or planned propane recovery facilities was estimated on an individual plant basis.
2. Future gas production from uncontracted gas reserves that will be necessary to satisfy the Provincial requirements plus authorized removals

from the Province was estimated. This was done by subtracting the gas available from contracted fields from the total demand for Alberta gas.

3. The propane supply associated with the expected gas production from uncontracted reserves was estimated assuming a recovery ratio of 10 barrels of propane per million cubic feet of residue gas. This ratio was based on British American's estimate of the present average propane recovery ratio for producing fields.
4. The propane that could be recovered by additional processing or reprocessing of gas from fields that are currently under contract for removal from the Province was estimated. This was done by applying a propane recovery ratio of some 9 barrels per million cubic feet of gas to the estimated daily production from these reserves.

(2) Views of the Board

The Board has reviewed its own forecast of propane production from established gas reserves based upon existing plant facilities and future plant facilities as presented in Tables A-1 and A-2 respectively of OGCB Report 65-11 and adjusted in Appendix A of OGCB 66-A. (The adjustments made in the latter report included an increase in the estimated production at the Nevis, Turner Valley, Pincher Creek and Empress processing plants.) On the basis of information submitted by British American at the hearing, the Board has

made further minor revisions to its forecast and has increased the expected production from two additional processing plants. The estimated future propane production from the Rimbey processing plant has been increased by about 600 barrels per day. The increase results from both an increase in the estimated liquid content of the raw gas and an increase in the propane recovery efficiency expected in the future. This increase in the production from the Rimbey processing plant corresponds to the adjustment made to the expected propane production from the Empress plant as referred to in OGCB 66-A.

The propane production expected from the Judy Creek plant also has been increased for the years 1966 to 1970. The earlier Board forecast assumed that gas throughputs corresponding to the processing plant capacity of 3,600 barrels per day of propane would not be achieved until 1970. However, the Judy Creek processing plant has already reached its capacity and the forecast has been revised accordingly. The increased production reflected in the revision is some 1,200 barrels per day for 1966 declining to some 100 barrels per day by 1970.

The Board's revised forecast of propane production from established reserves and existing facilities is presented in Table A-1. For the reasons discussed in Section V, the forecast covers the period 1966 to 1987 inclusive. Also shown in the table are the comparable forecasts taken from Table A-1 of OGCB Report 65-11 and the forecast prepared by British American. (In Table A-1 and all subsequent tables in this

appendix, the production figures have been rounded to the nearest 100 barrels per day.)

The table shows that the revised Board forecast predicts an increase from a 1966 propane production rate of some 31,000 barrels per day to a peak of over 34,000 barrels per day in 1967. The production is then expected to remain approximately level until 1973 and then, on the basis of currently established reserves of gas and existing facilities, to decline slowly thereafter to about 16,000 barrels per day by 1987.

Table A-1 also shows that the production from established gas reserves and existing facilities as forecast by British American is close to the Board forecast for the years 1966 and 1967 but is greater by some 1,500 to 2,500 barrels per day for the period 1968 to 1976. No comparison is possible beyond 1976. Although there are many minor differences in the forecast production when referring to individual processing plants, it appears that the difference in the totals is primarily due to the inclusion by British American of propane production from the Carstairs processing plant. The Board has recently received from the operator of the Carstairs processing plant an application to recover propane but, since the necessary processing plant alterations have not been approved by the Board as of March 1, 1966, the forecast production has been left in the category of production from future facilities.

The Board has also reviewed its forecast of additional propane production from future processing facilities as included in OGCB Report 65-11. For the reasons outlined in

OGCB 66-A, the Board is of the opinion that no change is warranted in this part of the forecast at this time.

The Board's current forecast of additional propane production from established gas reserves and future processing facilities for the period 1966 to 1987 is shown in Table A-2. Also shown is the comparable estimate made by British American for the period 1966 to 1976. The table shows that the Board's forecast of propane production from this source is about 700 barrels per day lower than the British American forecast for the years 1967 and 1968. The difference then increases to about 2,400 barrels per day by 1976. The difference results primarily because British American used an average propane recovery ratio based on those gas reserves now on stream in estimating propane production from uncontracted gas. The Board estimate involved a study of shut-in gas fields and reflects a lower propane recovery ratio because many of the fields are small and extensive propane recovery from them does not appear economically feasible.

Table A-3 has been prepared to compare the Board forecast of total propane production from established gas reserves to the British American forecast. The forecasts represent a combination of those amounts shown in Tables A-1 and A-2.

The table shows that the Board forecast from established reserves is similar to the British American forecast for the years 1966 and 1967 but is considerably lower for those years thereafter where comparison is possible. This is primarily

because the British American estimates are much higher with respect to expected additional production from future processing facilities.

2. Production of Propane from the Proposed Permit Supply Processing Plants

British American proposes to remove from the Province propane produced at the Bonnie Glen, Crossfield, Harmattan, Judy Creek, Leduc-Woodbend, Nevis, Pincher Creek, Rimbey and Turner Valley processing plants. Table A-4 has been prepared to compare the propane production from each of these processing plants as forecast by the Board and by British American. The quantities British American proposes to remove from the Bonnie Glen and Leduc-Woodbend processing plants are set by contract and are not related to the plant production. For this reason, British American did not include a forecast of production from these two processing plants.

Table A-4 shows that the Crossfield processing plant production as forecast by British American is higher than the Board's forecast. This results from the British American recognition of an expected expansion of the processing plant in the near future. Since the Board has not as of March 1, 1966, approved the expansion, it is not reflected in the Board forecast. The British American forecast of propane production from the Judy Creek processing plant is also higher than the revised Board forecast. The Board has reviewed its estimate and since the predicted propane production corresponds to the capacity of the existing processing plant, believes that

no change is warranted at this time.

The table also shows that the British American estimate of production from the Nevis processing plant is higher than as estimated by the Board. This is because the British American estimate reflects an increased throughput of gas at the processing plant as a result of additional contracts with Trans-Canada Pipe Lines Limited. Since the removal from the Province of the gas covered by these additional contracts has not as yet been approved by the Board, the associated propane production has not been included in the Board's forecast. The Board's forecast of production from the Pincher Creek processing plant is higher than the British American forecast. The Board having reviewed its own forecast and having no new evidence with regard to composition or reserves of marketable gas, is retaining the figures consistent with the Board's gas reserve estimate as of December 31, 1964, for the Pincher Creek Field.

3. Production of Propane from Gas Reserves
not yet Discovered or Developed

(1) Views of British American

British American did not include in its submission an estimate of propane production that might result from gas to be discovered or to be developed in the future. It indicated that this source would increase the propane supply above the levels forecast from established reserves. It should be noted that British American's forecast of gas production from uncontracted reserves reflects delivery of gas both for

approved removal from the Province and for supply of local requirements. It is possible that a portion of this future supply might come from future gas reserves but British American did not estimate what portion this might be.

(2) Views of the Board

The Board has reviewed its estimate, presented in OGCB Report 65-11, of the propane recoverable from two years growth of gas reserves and has decided not to alter it at this time.

Table A-5 presents a comparison of the total future propane production estimated by the Board with that estimated by British American. The Board forecast including future processing plant facilities and two years growth of gas reserves is considerably lower than the British American forecast even though the latter does not include a forecast from future gas reserves. This results primarily from the higher estimate by British American of the propane to be produced from future processing facilities.

Reserves of Propane

(1) Views of British American

British American in its submission estimated the total available reserves of propane in the Province from established gas reserves to be some 484 million barrels. This propane reserve was estimated as follows:

1. Propane reserves from fields on stream or under gas purchase contract with existing or planned

propane recovery facilities were estimated at some 362 million barrels. This represents a summation of individual processing plant estimates.

2. Recoverable propane reserves from additional processing or reprocessing of gas from fields currently under gas purchase contracts for removal from the Province were estimated to be some 50 million barrels. This estimate was obtained by applying a propane recovery factor based on an estimated composite gas stream analysis to the gas reserves in these fields.
3. Recoverable propane reserves from fields not under gas purchase contracts were estimated at some 72 million barrels. This estimate was based on an average propane yield factor determined from a sample of the reserves in this category applied to the total gas reserves in this category.

In addition, British American estimated that some 65 million barrels of propane would be recoverable from two years growth of gas reserves. This estimate was made by accepting the Board's long term growth rate for gas of 2.5 trillion cubic feet per year and applying a propane recovery ratio of 13 barrels per million cubic feet.

Combining the above figures results in total propane reserves as estimated by British American as of January 1, 1965, of some 549 million barrels.

(2) Views of the Board

The Board has reviewed its estimate of the established propane reserves as of December 31, 1964, and the propane associated with two years growth of gas reserves as was presented in OGCB Report 65-11. The Board has increased the recoverable reserves from the Rimbey processing plant by about 4 million barrels to reflect the previously mentioned higher estimate of the liquid content and recovery factor at the processing plant. This results in an increase in the reserves recoverable from existing facilities to some 334 million barrels. With respect to reserves from future processing facilities, the Board believes no change is necessary at this time in its earlier estimate of some 64 million barrels.

The Board has also reviewed its earlier estimate of the propane recoverable from two years growth of gas reserves and believes its estimate of some 43 million barrels is reasonable.

Combining the above figures results in the Board estimate of total recoverable propane reserves as of December 31, 1964, of some 441 million barrels.

Table A-6 has been prepared to compare the Board's estimate of propane reserves to the British American estimate. The table includes the comparable estimates from established gas reserves and existing processing facilities, from established gas reserves and future processing facilities, from two years growth of gas reserves and the total propane

reserves.

The table shows that the Board's estimate of propane from established gas reserves and existing facilities is lower by some 28 million barrels than the British American estimate. This results primarily from the inclusion of the Carstairs reserves in this category by British American.

The Board's estimate from future processing facilities is much lower than the British American estimate. The main reason for this is that British American used an average propane recovery ratio based on gas reserves now on stream in estimating propane reserves from gas not currently being produced. The Board estimate reflects a lower propane recovery ratio for these reserves because a sizeable portion of them are located in small fields where propane recovery does not appear economically feasible.

The table also shows that the Board's estimate of propane reserves associated with two years growth of gas reserves is much lower than the estimate made by British American. This is because British American used both a higher propane recovery ratio and a higher growth rate for gas than those used by the Board.

TABLE A-1

FORECAST OF PROPANE PRODUCTION FROM ESTABLISHED
GAS RESERVES BASED ON EXISTING PROCESSING FACILITIES

(BARRELS PER DAY)

<u>YEAR</u>	<u>BOARD ESTIMATE OGCB REPORT 65-11</u>	<u>BRITISH AMERICAN ESTIMATE</u>	<u>CURRENT BOARD ESTIMATE</u>
1966	28,200	32,200	31,300
1967	31,400	34,000	34,600
1968	32,400	36,600	34,900
1969	32,200	36,800	34,400
1970	31,900	36,500	34,000
1971	31,600	36,100	33,700
1972	32,200	36,100	34,200
1973	32,000	35,800	34,000
1974	31,900	35,500	33,800
1975	31,800	35,300	33,700
1976	31,600	35,200	33,300
1977	31,300		32,800
1978	31,100		32,500
1979	30,800		32,000
1980	30,000		30,200
1981	27,900		28,400
1982	25,000		26,400
1983	22,900		24,300
1984	20,400		21,000
1985	19,100		19,100
1986	17,600		17,400
1987			15,800

TABLE A-2

FORECAST OF ADDITIONAL PROPANE PRODUCTION
FROM ESTABLISHED GAS RESERVES AND FUTURE PROCESSING FACILITIES

(BARRELS PER DAY)

<u>YEAR</u>	<u>BOARD ESTIMATE OGCB REPORT 65-11</u>	<u>BRITISH AMERICAN ESTIMATE</u>	<u>CURRENT BOARD ESTIMATE</u>
1966	0	0	0
1967	0	700	0
1968	6,600	7,200	6,600
1969	6,800	8,300	6,800
1970	7,200	8,500	7,200
1971	7,500	8,600	7,500
1972	7,600	8,800	7,600
1973	7,700	9,100	7,700
1974	7,700	9,500	7,700
1975	8,100	10,000	8,100
1976	8,100	10,500	8,100
1977	8,000		8,000
1978	8,000		8,000
1979	8,000		8,000
1980	8,000		8,000
1981	8,000		8,000
1982	8,000		8,000
1983	8,000		8,000
1984	7,900		7,900
1985	7,800		7,800
1986	7,400		7,400
1987			6,700

TABLE A-3

FORECAST OF PROPANE PRODUCTION FROM ESTABLISHED
GAS RESERVES INCLUDING FUTURE PROCESSING FACILITIES

(BARRELS PER DAY)

<u>YEAR</u>	<u>BOARD ESTIMATE OGCB REPORT 65-11</u>	<u>BRITISH AMERICAN ESTIMATE</u>	<u>CURRENT BOARD ESTIMATE</u>
1966	28,200	32,200	31,300
1967	31,400	34,700	34,600
1968	39,000	43,800	41,500
1969	39,000	45,100	41,200
1970	39,100	45,000	41,200
1971	39,200	44,700	41,200
1972	39,800	44,900	41,800
1973	39,700	44,900	41,700
1974	39,600	45,000	41,500
1975	39,900	45,300	41,800
1976	39,600	45,700	41,400
1977	39,300		40,800
1978	39,100		40,500
1979	38,800		40,000
1980	38,000		38,200
1981	36,000		36,400
1982	32,900		34,400
1983	30,900		32,300
1984	28,400		28,900
1985	26,900		26,900
1986	25,000		24,800
1987			22,500

TABLE A-4

FORECAST OF PROPANE PRODUCTION
FROM THE PROPOSED PERMIT SUPPLY PLANTS
(BARRELS PER DAY)

PLANT	SOURCE OF ESTIMATE	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
BONNIE GLEN	BRITISH AMERICAN	(1)									
	BOARD	700	710	740	760	770	780	780	790	780	780
CROSSFIELD	BRITISH AMERICAN	(2)									
	BOARD	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320
HARMATTAN	BRITISH AMERICAN	(3)									
	BOARD	2,750	2,660	2,150	1,910	1,770	1,750	1,610	1,480	1,480	1,480
JUDY CREEK	BRITISH AMERICAN										
	BOARD	3,200	3,400	4,000	4,300	4,300	4,300	4,300	4,300	4,300	4,300
LEDUC-WOODBEND	BRITISH AMERICAN	(4)									
	BOARD	700	700	700	570	400	1,050	1,050	1,050	1,050	1,050
NEVIS	BRITISH AMERICAN										
	BOARD	965	965	965	965	965	965	965	965	965	965
PINCHER CREEK	BRITISH AMERICAN										
	BOARD	800	800	800	800	800	800	800	800	800	770
RIMBEY	BRITISH AMERICAN										
	BOARD	230	200	180	160	140	130	130	120	120	120
TURNER VALLEY	BRITISH AMERICAN										
	BOARD	340	300	280	270	250	230	220	220	220	220
	BRITISH AMERICAN										
	BOARD	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200
	BRITISH AMERICAN										
	BOARD	6,200	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,200
	BRITISH AMERICAN										
	BOARD	610	610	580	580	560	520	520	470	440	450
	BOARD	580	580	580	580	580	580	580	580	540	480

(1) CONTRACT WITH OPERATOR FOR 300 BARRELS PER DAY, NO FORECAST PRESENTED
 (2) PLANT OPERATOR'S ESTIMATE
 (3) PLANT OPERATOR'S ESTIMATE
 (4) CONTRACT WITH OPERATOR FOR 300 BARRELS PER DAY, NO FORECAST PRESENTED

TABLE A-5

FORECAST OF PROPANE PRODUCTION FROM ESTABLISHED
GAS RESERVES AND GAS RESERVES NOT YET DEVELOPED

(BARRELS PER DAY)

YEAR	BRITISH AMERICAN ESTIMATE *	BOARD ESTIMATE	
		FROM EXISTING PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES
1966	32,200	31,300	31,300
1967	34,700	34,600	34,600
1968	43,800	34,900	41,500
1969	45,100	34,400	41,200
1970	45,000	34,100	41,300
1971	44,700	33,800	41,300
1972	44,900	34,400	42,000
1973	44,900	34,300	42,000
1974	45,000	34,200	41,900
1975	45,300	34,300	42,400
1976	45,700	34,000	42,100
1977		33,600	41,600
1978		33,600	41,600
1979		33,400	41,400
1980		31,800	39,800
1981		30,300	38,300
1982		28,600	36,600
1983		26,800	34,800
1984		23,700	31,600
1985		22,100	29,900
1986		21,000	28,400
1987		19,800	26,500

* BRITISH AMERICAN DOES NOT INCLUDE PRODUCTION FROM TWO YEARS
GROWTH OF GAS RESERVES.

TABLE A-6

RECOVERABLE PROPANE RESERVES AS OF DECEMBER 31, 1964
(MILLIONS OF BARRELS)

	BRITISH AMERICAN ESTIMATE		BOARD ESTIMATE	
	FROM EXISTING FACILITIES	INCLUDING FUTURE PROCESSING FACILITIES	FROM EXISTING FACILITIES	INCLUDING FUTURE PROCESSING FACILITIES
PROPANE RESERVES				
FROM ESTABLISHED GAS RESERVES	362	484	334	398
FROM TWO YEARS GROWTH OF GAS RESERVES	65	65	43	43
TOTAL RECOVERABLE PROPANE RESERVES	427	549	377	441

APPENDIX B

ALBERTA PROPANE REQUIREMENTS AND PERMIT COMMITMENTS

Alberta Propane Requirements

(1) Views of British American

British American amended its 1965 forecast, reviewed by the Board in OGCB Report 65-11, in two respects to arrive at its current projection.

The first amendment adopted the Board's method of treatment of British American's former category of demand "miscellaneous use". This was estimated in the original British American projection to total a constant 1,200 barrels per day throughout the forecast period, and comprised such consumption as field and plant use, losses, and a category statistically reported by the Board as "refinery and other" which amounted to some 200 barrels per day in 1964. To reflect this latter category, the Board in the OGCB Report 65-11 increased the British American year by year forecast of LPG distributors demand by 200 barrels per day, since this comprised in the main industrial and carburetion consumption. The remaining 1,000 barrels per day was not included in British American's demand figures, because the Board treated such items as plant and field consumption and losses as a deduction from supply, rather than as a requirement.

The second amendment by British American was to substitute the Board forecast of miscible flood demand for the estimates

previously presented by British American.

(2) Views of the Board

The Board notes that both these amendments were in accordance with, rather than divergent from, the Board forecast or the Board's amendments to the original British American forecast. Consequently, the Board has no additional comments relating to the differences between the British American and the Board forecast to those already made in OGCB Report 65-11 and has decided not to alter its forecast of Alberta requirements at this time.

Table B-1 compares the current British American and Board forecasts of total requirements for propane in Alberta. The adjustments made by British American to its previous forecast result in a 9 million barrel decrease in thirty-year requirements to 191 million barrels and consequently increase the difference between the Board and British American thirty-year requirements from 21 to 30 million barrels. British American's average annual rate of growth over the entire forecast period remains unchanged at a slightly higher level than the corresponding Board rate. In addition, British American continues to show significantly lower and higher rates of growth over the first and second half of the period respectively as compared to those of the Board.

Permit Commitments

Because the British American submission was made prior to publication of Board report OGCB 66-A relating to the Pacific

Petroleums Ltd. application, the Board has adjusted British American's figures to allow for the new Pacific permit. The Board has also adjusted the amounts relating to Permit No. BA 65-1 in anticipation of the proposed termination of this permit as of September 30, 1966. Present permit commitments therefore consist of the amounts approved under the Canadian Hydrocarbons Permit No. CH 65-1, the Pacific Petroleums Permit No. PP 66-2 and the British American Permit No. BA 65-1 up to September 30, 1966. Canadian Hydrocarbons' permit has a term from November 1, 1966, to October 31, 1986, with maximum amounts for consecutive twelve-month periods declining from some 2,100 barrels per day in 1967 to some 1,500 barrels per day for 1974 and subsequent periods. Pacific Petroleums' term runs from November 1, 1965, to October 31, 1987. Maximum amounts for consecutive twelve-month periods begin at 9,800 barrels per day in 1966 and increase to 11,000 barrels per day from 1968 to 1979 inclusive, declining thereafter to 1,700 barrels per day by 1987. The British American adjusted permit commitment is equivalent to 1,500 barrels per day for 1966.

Total permit commitments as shown in Table B-2 are calculated to rise from 11,300 barrels per day in 1966 to some 13,000 barrels per day in 1968 and 1969 and decline thereafter to 1,700 barrels per day by 1987, resulting in overall thirty-year commitments of some 88 million barrels.

Summary

Table B-3 is the summation of Tables B-1 and B-2. Since

the permit commitments presented by British American have been revised to conform with the Board's figures, the differences in thirty-year requirements and commitments shown in Table B-3 are attributable solely to the variations in the estimates of Alberta requirements shown in Table B-1.

TABLE B-1

FORECAST TOTAL ALBERTA REQUIREMENTS FOR PROPANE

1966 - 1995

(BARRELS PER DAY)

<u>YEAR</u>	<u>BRITISH AMERICAN</u>	<u>BOARD</u>
1966	8,600	9,000
1967	9,000	9,400
1968	9,700	10,000
1969	10,200	10,400
1970	11,000	12,900
1971	11,500	13,900
1972	12,100	14,800
1973	12,600	15,600
1974	13,200	16,100
1975	13,800	16,300
1976	14,400	17,400
1977	14,900	18,100
1978	15,500	19,000
1979	16,000	19,900
1980	16,500	21,800
1981	17,100	22,200
1982	17,800	22,700
1983	18,400	23,100
1984	19,100	23,600
1985	19,800	24,000
1986	20,500	24,600
1987	21,300	24,900
1988	22,000	25,400
1989	22,900	25,800
1990	23,700	26,300
1991	24,600	26,600
1992	25,500	27,100
1993	26,500	27,500
1994	27,500	28,000
1995	28,500	28,400
30-YEAR REQUIREMENTS (MILLIONS OF BARRELS)	191	221
AVERAGE ANNUAL CUMULATIVE GROWTH RATE (%)		
1966 - 1981	4.7	6.2
1981 - 1995	3.7	1.8
1966 - 1995	4.2	4.0

TABLE B-2

ALBERTA PERMIT COMMITMENTS 1966-1995

(BARRELS PER DAY)

<u>YEAR</u>	<u>PERMIT NO. CH 65-1*</u> <u>CANADIAN HYDROCARBONS</u>	<u>PERMIT NO. PP 66-2*</u> <u>PACIFIC PETROLEUMS</u>	<u>TOTAL</u> <u>COMMITMENTS</u>
1966	-	9,800	11,300**
1967	2,130	10,300	12,430
1968	2,040	11,000	13,040
1969	2,040	11,000	13,040
1970	1,910	11,000	12,910
1971	1,770	11,000	12,770
1972	1,750	11,000	12,750
1973	1,610	11,000	12,610
1974	1,480	11,000	12,480
1975	1,480	11,000	12,480
1976	1,480	11,000	12,480
1977	1,480	11,000	12,480
1978	1,480	11,000	12,480
1979	1,480	11,000	12,480
1980	1,480	10,200	11,680
1981	1,480	9,600	11,080
1982	1,480	8,900	10,380
1983	1,480	8,200	9,680
1984	1,480	6,300	7,780
1985	1,480	4,700	6,180
1986	1,480	2,700	4,180
1987	-	1,700	1,700
1988	-	-	-
1989	-	-	-
1990	-	-	-
1991	-	-	-
1992	-	-	-
1993	-	-	-
1994	-	-	-
1995	-	-	-
30-YEAR COMMITMENTS (MILLIONS OF BARRELS)	12	75	88

* AMOUNTS REPRESENT AUTHORIZED PERMIT VOLUMES FOR THE 12 MONTHS ENDING OCTOBER 31 IN EACH YEAR. IN THE CASE OF CANADIAN HYDROCARBONS IT IS ASSUMED THAT ADDITIONAL PURCHASE CONTRACTS ARE MADE BY THE PERMITTEE, UP TO THE MAXIMUM ALLOWED IN THE PERMIT.

** INCLUDES 1,500 BARRELS PER DAY UNDER THE BRITISH AMERICAN PERMIT NO. BA 65-1, TO COVER THE PERIOD JANUARY 1 TO SEPTEMBER 30, 1966 INCLUSIVE.

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TABLE B-3

TOTAL ALBERTA REQUIREMENTS AND PERMIT COMMITMENTS 1966 - 1995

(BARRELS PER DAY)

<u>YEAR</u>	<u>BRITISH AMERICAN</u>	<u>BOARD</u>
1966	19,900	20,300
1967	21,400	21,800
1968	22,700	23,000
1969	23,200	23,400
1970	23,900	25,800
1971	24,300	26,700
1972	24,900	27,600
1973	25,200	28,200
1974	25,700	28,600
1975	26,300	28,800
1976	26,900	29,900
1977	27,400	30,600
1978	28,000	31,500
1979	28,500	32,400
1980	28,200	33,500
1981	28,200	33,300
1982	28,200	33,100
1983	28,100	32,800
1984	26,900	31,400
1985	26,000	30,200
1986	24,700	28,800
1987	23,000	26,600
1988	22,000	25,400
1989	22,900	25,800
1990	23,700	26,300
1991	24,600	26,600
1992	25,500	27,100
1993	26,500	27,500
1994	27,500	28,000
1995	28,500	28,400

30-YEAR REQUIREMENTS AND
PERMIT COMMITMENTS

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(MILLIONS OF BARRELS)

APPENDIX C

THE MEETING OF THE PRESENT AND FUTURE REQUIREMENTS OF ALBERTA FOR PROPANE AND THE EXISTING PERMIT COMMITMENTS, AND THE RESULTING SURPLUS

As discussed in Section V of this report, the Board has altered slightly the three tests which it believes must be satisfied in protecting for Alberta propane requirements and the existing permit commitments. The first test involves comparison of the total propane reserves to the total thirty-year requirements. The second test as modified involves a year by year supply-demand balance for the period of the longest existing permit to remove propane from the Province. The final test is a comparison of the propane reserves remaining at the end of the term of the longest permit to the total requirements for the remainder of the thirty-year period.

Total Balance

The Board has compared in Table C-1 the reserve and requirement estimates and the resulting surplus as presented by British American with its own estimates. The table includes the comparable surplus that would result from existing processing facilities and including future facilities.

The table shows that the propane reserves from existing facilities as estimated by the Board are 68 million barrels greater than the total thirty-year requirements. If the reserves from future facilities are included, this surplus increases to 132 million barrels. The Board believes that

greater weight should be placed on the latter figure. The Board estimated surplus of 132 million barrels is much lower than the 270 million barrels estimated by British American. The difference results from a lower estimate by British American of the thirty-year requirements and also a much higher estimate of the total recoverable propane reserves. The latter occurs primarily because British American's estimate of propane reserves recoverable from future facilities is higher than the Board's.

Balance on a Year by Year Basis

British American included in its submission a Provincial supply-demand balance for the period 1966 to 1976, inclusive. The balance did not include an estimate of propane production from future gas reserves. However, the projected production from gas reserves established but not under contract may depend to some extent on future development of gas. Details of the balance as submitted by British American are presented as Table C-2. (In Table C-2 and all subsequent tables in this appendix production and requirement figures have been rounded to the nearest 100 barrels per day). The table shows that, for the case of existing facilities, British American forecasts a propane surplus of over 8,000 barrels per day throughout the period studied. If future facilities are included, the surplus forecast by British American will increase from some 12,000 barrels per day in 1966 and 1967 to over 21,000 barrels per day in 1968 and will then decline

to some 19,000 barrels per day in 1976.

Table C-3 presents a supply-demand balance for the period 1966 to 1987 based on the Board's estimate of propane production and requirements as presented in Appendices A and B. The table shows that, for the case of propane production from existing facilities and two years growth of gas reserves, a surplus of about 11,000 barrels per day exists for the period 1966 to 1969 inclusive. The surplus then declines to approximately a balanced position by 1979 and a deficit occurs thereafter. Including production from future processing facilities, the projected surplus is some 11,000 barrels per day for 1966 and 1967, increases to over 18,000 barrels per day in 1968 and then declines to approximately a balanced position for the years 1984 to 1987

Table C-4 compares the year by year surplus as estimated by British American and by the Board. As mentioned previously, the figures are not directly comparable because British American has not included a production estimate from future gas reserves. The table shows that, notwithstanding the different basis, the Board's forecast surplus is lower than that forecast by British American for both the case from existing facilities and the case including future facilities for the period 1966 to 1976. This results from both a higher production forecast and a lower demand forecast by British American.

Balance for Remainder of Thirty-Year Period

Table C-5 has been prepared as a substitute for a year

by year supply-demand balance for the period 1988 to 1995. It is a comparison of the remaining propane reserves as of the end of 1987 (the end of the longest existing permit) to the total requirements of the Province for the remainder of the thirty-year period. British American did not extend its propane production forecast beyond the period of its requested permit (1966 to 1976) and for this reason a comparison between the Board's and British American's estimates is not possible.

Table C-5 presents the balance for the remainder of the thirty-year period for two cases: one reflecting production from existing processing facilities and the other including future facilities. The table shows that the remaining reserves as estimated by the Board at the end of 1987 will be 129 million barrels for the case of existing facilities or 137 million barrels including future facilities. It also shows that the total requirements for the remainder of the thirty-year period will be 80 million barrels. This results in a surplus of the then remaining reserves over the requirements for the remainder of the period of protection of 49 million barrels for the case of existing facilities or 57 million barrels including future facilities.

TABLE C-1

TOTAL PROPANE SURPLUS
(MILLIONS OF BARRELS)

	BRITISH AMERICAN ESTIMATE		BOARD ESTIMATE	
	FROM EXISTING PROCESSING FACILITIES	INCLUDING FUTURE PROCESSING FACILITIES	FROM EXISTING PROCESSING FACILITIES	INCLUDING FUTURE PROCESSING FACILITIES
<u>PROPANE RESERVES</u>				
RESERVES FROM ESTABLISHED GAS RESERVES	362	484	334	398
RESERVES FROM TWO-YEARS GROWTH OF GAS RESERVES	65	65	43	43
TOTAL RECOVERABLE PROPANE RESERVES	427	549	377	441
<u>PROPANE REQUIREMENTS</u>				
THIRTY-YEAR ALBERTA REQUIREMENTS	191	191	221	221
EXISTING PERMIT* COMMITMENTS	88	88	88	88
TOTAL RESERVES NEEDED TO MEET ALBERTA REQUIREMENTS AND PERMIT COMMITMENTS	279	279	309	309
SURPLUS	148	270	68	132

* PERMIT COMMITMENT HAS BEEN CONSIDERED IDENTICAL FOR EACH ANALYSIS.

TABLE C-2
 PROPANE SUPPLY-DEMAND BALANCE ESTIMATED BY BRITISH AMERICAN
 (BARRELS PER DAY)

YEAR	PRODUCTION		ALBERTA REQUIREMENTS AND PRESENT PERMIT COMMITMENTS	SURPLUS	
	FROM EXISTING PRO- CESSING FACILITIES	INCLUDING FUTURE PRO- CESSING FACILITIES		FROM EXISTING PRO- CESSING FACILITIES	INCLUDING FUTURE PRO- CESSING FACILITIES
1966	32,200	32,200	19,900	12,300	12,300
1967	34,000	34,700	21,400	12,600	13,300
1968	36,600	43,800	22,700	13,900	21,100
1969	36,800	45,100	23,200	13,600	21,900
1970	36,500	45,000	23,900	12,600	21,100
1971	36,100	44,700	24,300	11,800	20,400
1972	36,100	44,900	24,900	11,200	20,000
1973	35,800	44,900	25,200	10,600	19,700
1974	35,500	45,000	25,700	9,800	19,300
1975	35,300	45,300	26,300	9,000	19,000
1976	35,200	45,700	26,900	8,300	18,800
TOTAL (MILLIONS OF BARRELS)	142	172	97	45	75

TABLE C-3
PROPANE SUPPLY-DEMAND BALANCE ESTIMATED BY BOARD
(BARRELS PER DAY)

YEAR	PRODUCTION		ALBERTA REQUIREMENTS AND PRESENT PERMIT COMMITMENTS	SURPLUS	
	FROM EXISTING PRO- CESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PRO- CESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES		FROM EXISTING PRO- CESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PRO- CESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES
1966	31,300	31,300	20,300	11,000	11,000
1967	34,600	34,600	21,800	12,800	12,800
1968	34,900	41,500	23,000	11,900	18,500
1969	34,400	41,200	23,400	11,000	17,800
1970	34,100	41,300	25,800	8,300	15,500
1971	33,800	41,300	26,700	7,100	14,600
1972	34,400	42,000	27,600	6,800	14,400
1973	34,300	42,000	28,200	6,100	13,800
1974	34,200	41,900	28,600	5,600	13,300
1975	34,300	42,400	28,800	5,500	13,600
1976	34,000	42,100	29,900	4,100	12,200
1977	33,600	41,600	30,600	3,000	11,000
1978	33,600	41,600	31,500	2,100	10,100
1979	33,400	41,400	32,400	1,000	9,000
1980	31,800	39,800	33,500	-1,700	6,300
1981	30,300	38,300	33,300	-3,000	5,000
1982	28,600	36,600	33,100	-4,500	3,500
1983	26,800	34,800	32,800	-6,000	2,000
1984	23,700	31,600	31,400	-7,700	200
1985	22,100	29,900	30,200	-8,100	-300
1986	21,000	28,400	28,800	-7,800	-400
1987	12,800	26,500	26,600	-6,800	-100
TOTAL (MILLIONS OF BARRELS)	248	304	229	19	75

TABLE C-4

YEAR BY YEAR PROPANE SURPLUS

YEAR	BRITISH AMERICAN ESTIMATES		BOARD ESTIMATES	
	FROM EXISTING PRO- CESSING FACILITIES	INCLUDING FUTURE PRO- CESSING FACILITIES	FROM EXISTING PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES
	(BARRELS PER DAY)			
1966	12,300	12,300	11,000	11,000
1967	12,600	13,300	12,800	12,800
1968	13,900	21,100	11,900	18,500
1969	13,600	21,900	11,000	17,800
1970	12,600	21,100	8,300	15,500
1971	11,800	20,400	7,100	14,600
1972	11,200	20,000	6,800	14,400
1973	10,600	19,700	6,100	13,800
1974	9,800	19,300	5,600	13,300
1975	9,000	19,000	5,500	13,600
1976	8,300	18,800	4,100	12,200
1977			3,000	11,000
1978			2,100	10,100
1979			1,000	9,000
1980			-1,700	6,300
1981			-3,000	5,000
1982			-4,500	3,500
1983			-6,000	2,000
1984			-7,700	200
1985			-8,100	-300
1986			-7,800	-400
1987			-6,800	-100
TOTAL (MILLIONS OF BARRELS)	45	75	19	75

TABLE C-5

PROPANE SURPLUS REMAINING AT THE END OF
THE THIRTY-YEAR PERIOD

(MILLIONS OF BARRELS)

	BOARD ESTIMATE	
	FROM EXISTING PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES
TOTAL RECOVERABLE PROPANE RESERVES	377	441
PRODUCTION DURING TERM OF LONGEST EXISTING PERMIT - TO THE END OF 1987	248	304
PROPANE RESERVES REMAINING AT THE END OF 1987		137
TOTAL REQUIREMENTS INCLUDING EXISTING PERMIT COMMITMENTS	309	309
REQUIREMENTS DURING TERM OF LONGEST EXISTING PERMIT - TO THE END OF 1987	229	229
REQUIREMENTS FOR REMAINDER OF THIRTY-YEAR PERIOD (1988 - 1995)	80	80
SURPLUS	49	57

APPENDIX D

THE APPLICANT'S REQUEST FOR AUTHORIZATION FOR THE REMOVAL OF PROPANE AND THE SURPLUS WHICH WOULD RESULT IF THE REQUEST WERE APPROVED

British American requested authorization to remove from the Province a total of 28,470,000 barrels of propane over a ten-year period commencing October 1, 1966. The average quantity to be removed under the requested permit is 7,800 barrels per day. The propane is to come from the Bonnie Glen, Crossfield, Harmattan, Judy Creek, Leduc-Woodbend, Nevis, Pincher Creek, Rimbey and Turner Valley processing plants.

Table D-1 has been prepared to determine how much propane British American will be able to dedicate to this project over the period of the proposed permit. The table is based on the Board forecast of propane production from the subject processing plants, and on evidence submitted by British American as to the portion of the propane it owns or controls from each processing plant, and as to certain commitments it has for propane within the Province. For convenience, the table has been labelled as the years 1967 to 1976 inclusive. It should be noted that the 1967 year as shown in the table actually begins October 1, 1966, and each subsequent year shown on the table begins October 1, of the previous year. The details in support of Table D-1 are as follows:

Bonnie Glen. British American has an open-end contract with Texaco Exploration Company for 300 barrels of propane per day from the Bonnie Glen processing plant.

Table D-1 assumes this volume of propane will be available to British American for the entire period of the requested permit.

Crossfield. British American has an open-end contract with Socony Mobil Oil of Canada Ltd. for some 38 per cent of the total Crossfield processing plant production. Table D-1 assumes this volume of propane will be available to British American for the entire period of the requested permit.

Harmattan. British American has a contract with Canadian Superior Oil Ltd. covering 40 per cent of that portion of the propane production from the Harmattan processing plant which Canadian Superior Oil Ltd. owns or controls. Since the Board was not given information concerning the details of the arrangement which Canadian Superior has to market propane on behalf of other owners at the Harmattan plant, the quantities shown in Table D-1 are limited to 40 per cent of the Harmattan propane owned by Canadian Superior.

Judy Creek and Leduc-Woodbend. British American owns some 27 per cent of the Judy Creek processing plant propane production. However, it has contracted with Imperial Oil Limited for the disposal of this production until early in 1968. It also has a five-year contract to purchase from Imperial Oil Limited 300

barrels per day of propane from the Leduc-Woodbend processing plant. Table D-1 recognizes both of these contracts in that no propane is considered as available to British American from Judy Creek for 1967 or the first half of 1968 but 300 barrels per day is considered available from Leduc-Woodbend. Thereafter, the combined total available from both these processing plants is 27 per cent of the Board's estimate of production from the Judy Creek processing plant. This approach is consistent with that used by British American in estimating the proposed permit supply.

Although the propane removed from the gas at the Judy Creek processing plant is actually recovered as specification propane at the Leduc-Woodbend processing plant, the applicant showed the propane supplies from gas produced at the two processing plants separately, perhaps for reasons related to its contracts. The Board has taken the same approach in the preparation of this report.

Rimbey. British American owns approximately 36 per cent of the propane production from the Rimbey processing plant and is marketing under year by contracts an additional 14 per cent on behalf of the other owners. This results in control by British American of some 50 per cent of the Rimbey processing

plant production. Evidence presented at the hearing indicated that British American has a commitment to Chemcell for some 1,200 barrels per day of propane to be produced from the Rimbey plant. While the Board did not receive details of the contracts which British American has for the marketing of propane on behalf of others, since the quantities of propane which British American proposes to dedicate to its extraprovincial market from the Rimbey plant is less than that it owns, the Board is satisfied that British American does have full control of some 50 per cent of the production of the Rimbey plant less the 1,200 barrels per day. The Board has accepted British American's submission that the 1,200 barrel per day deduction be extended for the full term of the permit.

Nevis, Pincher Creek and Turner Valley. British American owns 100 per cent of the propane production from each of these three processing plants. However, evidence presented at the hearing indicated that it also has additional commitments within the Province for some 300 barrels per day of propane. The Board has in Table D-1, shown as available to British American from each of these processing plants, 100 per cent of the Board's estimate of propane production less 100 barrels per day. This in total, provides for a further reservation of 300 barrels per

day to meet Alberta requirements for propane.

The table shows that under the existing policy as set out by the Board in OGCB Report 65-11 and discussed further in Section V of this report, British American would be entitled to remove from the Province the requested quantity of 7,800 barrels per day. Removal of these quantities after the initial two years would be subject to British American filing the appropriate additional contracts with the Board during the first twenty-one months of the permit period. The table also shows the quantities that British American would be permitted to remove from the Province if no additional contracts are presented to the Board. For this case the quantities that could be removed would be 7,800 barrels per day for the first two years, declining to 5,790 barrels per day in the third year. The quantity that may be removed would decline further to 5,190 barrels per day in the tenth and final year of the proposed permit.

Total Balance

Table C-1 in Appendix C has shown that based on the Board's study, the total available propane reserves including future processing facilities, are some 132 million barrels greater than the thirty-year requirements of the Province and the existing permit commitments. If the British American request is provided for (28.5 million barrels) a surplus of some 103 million barrels still remains. If only the reserves associated with existing processing

plant facilities are considered, this results in a reduction in the total surplus to some 39 million barrels.

Balance on a Year by Year Basis

Table D-2 has been prepared to determine if the British American request is surplus on a year by year basis to Alberta's requirements. The table has been based on the Board's estimates of requirements and production and presents two cases: one reflecting propane production from established gas reserves and existing processing facilities plus two years growth of gas reserves, and the other including production from future processing facilities. The British American requested permit is for only a ten-year period terminating in 1976. However, for the reasons discussed in Section V, the Board has decided that the year by year propane balance should be extended to cover the period from 1966 to 1987.

Columns 2 and 3 of Table D-2 have been taken from Table C-3 of this report and give the propane surplus to Alberta's requirements and the existing permit commitments as projected by the Board for the two above mentioned cases. Column 4 shows the British American request and columns 5 and 6 are the resulting surplus for each case.

The table shows that for the case of existing facilities plus two years growth of gas reserves, the British American request can be satisfied and a surplus of some 5,000 barrels per day will exist in 1967. The surplus will gradually

decline and a deficit is predicted for the period 1971 to the termination of the requested permit in 1976. If production from future facilities is included, a surplus results for the entire period. The surplus will increase from some 5,000 barrels per day in 1967 to about 11,000 barrels per day in 1968 and thereafter will decline to some 4,000 barrels per day by the termination of the requested permit in 1976. The Board places greater weight on the case including future facilities.

Extending the forecast for the period 1977 to 1987 inclusive, from existing processing facilities and two years growth of gas reserves, the surplus declines from some 3,000 barrels per day to a maximum deficit of 8,100 barrels per day in 1985. By 1987 the deficit has decreased to 6,800 barrels per day. For the period 1977 to 1987 inclusive, and including future processing facilities, the surplus declines from some 11,000 barrels per day in 1977 to approximately a balanced position by 1987. The Board does not believe that the supply-demand balance in the latter years of the extended forecast would in any way be affected by the removal from the Province of the quantities requested by British American.

Balance for Remainder of Thirty-Year Period

Table D-3 is a comparison of the remaining propane reserves as of the end of 1987 with the total requirements of the Province for the remainder of the thirty-year period,

1988 to 1995 inclusive. The table presents two cases: one reflecting production from existing processing facilities and two years growth of gas reserves and the other including future facilities.

The table shows that the remaining reserves at the end of the longest existing permit term will be 129 million barrels for the case of existing facilities or 137 million barrels including future facilities. It also shows that the total requirements for the remainder of the thirty-year period will be 80 million barrels. This results in a surplus of the then remaining reserves over the requirements for the remainder of the period of protection of 49 million barrels for the case of existing facilities or 57 million barrels including future facilities.

On the basis of the foregoing, the Board concludes that the first test of a surplus has been satisfied. Giving most weight to the figures which include future processing facilities the second test is clearly satisfied for the period of the proposed permit and the deficiencies which appear in the last few years of the twenty-year projection are nominal and ones which in any case could not practically be eliminated by curtailment of removal of propane during the first ten years of the period. The third test shows a surplus but, in the light of the trend of the year by year analysis, it is likely that propane would only be available to meet the continuing Alberta requirements if special operations designed to accelerate

its recovery were instituted. As in the case of the second test, however, curtailment of removal of propane over the period 1966 to 1975 would have no effect in the supply during the period of the third test. All things considered, the Board is satisfied that the propane for which the applicant seeks authority to remove is surplus to the present and future needs of the Province.

TABLE D-1

PROPANE AVAILABLE TO BRITISH AMERICAN BASED ON BOARD FORECAST

PLANT	(BARRELS PER DAY)									
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
BONNIE GLEN	300	300	300	300	300	300	300	300	300	300
CROSSFIELD	370	370	370	370	370	370	370	370	370	370
HARMATTAN	380	370	300	270	250					
JUDY CREEK		160	680	680	680	980	980	980	980	980
LEDUC-WOODBEND	300	300	300	300	300					
NEVIS	700	700	700	700	700	700	700	700	700	670
PINCHER CREEK	240	200	180	170	150	130	120	120	120	120
RIMBEY	1,900	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,900
TURNER VALLEY	480	480	480	480	480	480	480	480	440	380
TOTAL	4,670	4,830	5,260	5,220	5,180	4,910	4,900	4,900	4,860	4,720
1.67 x TOTAL	7,800	8,070								
1.10 x TOTAL			5,790	5,740	5,700	5,400	5,390	5,390	5,350	5,190
REQUESTED VOLUMES	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800
MAXIMUM TO BE CONSIDERED BY THE BOARD FOR REMOVAL BY BRITISH AMERICAN	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800
THOUSANDS OF BARRELS PER YEAR	2,847	2,847	2,847	2,847	2,847	2,847	2,847	2,847	2,847	2,847
MINIMUM TO BE CONSIDERED BY THE BOARD FOR REMOVAL BY BRITISH AMERICAN	7,800	7,800	5,790	5,740	5,700	5,400	5,390	5,390	5,350	5,190
THOUSANDS OF BARRELS PER YEAR	2,847	2,847	2,113	2,095	2,081	1,971	1,967	1,967	1,953	1,894

PROPANE SURPLUS BASED ON BOARD FORECAST IF
BRITISH AMERICAN REQUEST WAS GRANTED

(BARRELS PER DAY)						
(1)	(2)	(3)	(4)	(5)	(6)	
SURPLUS PRIOR TO CONSIDERING APPLICATION *						
YEAR	FROM EXISTING PRO- CESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	BRITISH AMERICAN REQUEST	FROM EXISTING PRO- CESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	REMAINING SURPLUS
1967	12,800	12,800	7,800	5,000	5,000	
1968	11,900	18,500	7,800	4,100	10,700	
1969	11,000	17,800	7,800	3,200	10,000	
1970	8,300	15,500	7,800	500	7,700	
1971	7,100	14,600	7,800	-700	6,800	
1972	6,800	14,400	7,800	-1,000	6,600	
1973	6,100	13,800	7,800	-1,700	6,000	
1974	5,600	13,300	7,800	-2,200	5,500	
1975	5,500	13,600	7,800	-2,300	5,800	
1976	4,100	12,200	7,800	-3,700	4,400	
1977	3,000	11,000		3,000	11,000	
1978	2,100	10,100		2,100	10,100	
1979	1,000	9,000		1,000	9,000	
1980	-1,700	6,300		-1,700	6,300	
1981	-3,000	5,000		-3,000	5,000	
1982	-4,500	3,500		-4,500	3,500	
1983	-6,000	2,000		-6,000	2,000	
1984	-7,700	200		-7,700	200	
1985	-8,100	-300		-8,100	-300	
1986	-7,800	-400		-7,800	-400	
1987	-6,800	-100		-6,800	-100	

* FROM TABLE C-3

TABLE D-3

PROPANE SURPLUS BASED ON BOARD FORECAST REMAINING
AT THE END OF THE THIRTY-YEAR PERIOD IF THE
BRITISH AMERICAN REQUEST WAS GRANTED

(MILLIONS OF BARRELS)

	FROM EXISTING PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES	INCLUDING FUTURE PROCESSING FACILITIES AND TWO YEARS GROWTH OF GAS RESERVES
TOTAL RECOVERABLE PROPANE RESERVES	377	441
PRODUCTION DURING TERM OF LONGEST EXISTING PERMIT - TO THE END OF 1987	248	304
PROPANE RESERVES REMAINING AT THE END OF 1987	129	137
TOTAL REQUIREMENTS INCLUDING EXISTING AND REQUESTED PERMIT COMMITMENTS	338	338
REQUIREMENTS DURING TERM OF LONGEST EXISTING PERMIT - TO THE END OF 1987	258	258
REQUIREMENTS FOR REMAINDER OF THIRTY-YEAR PERIOD (1988 - 1995)	80	80
SURPLUS	49	57

APPENDIX E

IN THE MATTER of The Gas Resources Preservation Act, 1956, being chapter 19 of the Statutes of Alberta, 1956; and

IN THE MATTER of a Permit to The British American Oil Company Limited

PERMIT NO. BA 66-2

WHEREAS The British American Oil Company Limited (hereinafter called "the Permittee") has applied to the Oil and Gas Conservation Board for a permit pursuant to The Gas Resources Preservation Act, 1956, for the removal from the Province of propane produced at the gas processing plants hereinafter referred to; and

WHEREAS the Board, upon inquiry into and hearing of the application, has found that the Permittee is a person who produces or has the right to produce propane within the Province and who has entered into contracts to purchase propane within the Province and who proposes to remove propane, or cause it to be removed, from the Province, and that the provisions of the said Act affecting the application have been complied with; and

WHEREAS the Board is of the opinion that the granting of this Permit for the removal of propane from the Province is in the public interest having regard to the present and future needs of persons within the Province, and to the established

reserves and trends in growth and discovery of the reserves of gas or propane in the Province; and

WHEREAS the Lieutenant Governor in Council has given his approval by Order in Council numbered , and dated

THEREFORE, the Oil and Gas Conservation Board, pursuant to the provisions of The Gas Resources Preservation Act, 1956, hereby grants a Permit to The British American Oil Company Limited, and hereby authorizes the removal of propane from the Province, subject to the regulations and orders made pursuant to the provisions of the said Act and to the terms and conditions prescribed in this Permit, as follows:

1. Subject to the conformity by the Permittee with the terms and conditions hereof, this Permit shall be operative for a term commencing on October 1, 1966, and ending on September 30, 1976.

2. (1) The quantity of propane that may be removed from the Province pursuant to this Permit shall not exceed in any of the following twelve-month periods the maximum quantity prescribed for that period as follows:

<u>Twelve-Month Period</u>	<u>Maximum Quantity</u>
October 1, 1966 to September 30, 1967	2,847,000 barrels
October 1, 1967 to September 30, 1968	2,847,000 barrels
October 1, 1968 to September 30, 1969	2,113,000 barrels
October 1, 1969 to September 30, 1970	2,095,000 barrels

October 1, 1970 to September 30, 1971	2,081,000 barrels
October 1, 1971 to September 30, 1972	1,971,000 barrels
October 1, 1972 to September 30, 1973	1,967,000 barrels
October 1, 1973 to September 30, 1974	1,967,000 barrels
October 1, 1974 to September 30, 1975	1,953,000 barrels
October 1, 1975 to September 30, 1976	1,894,000 barrels

(2) Notwithstanding subclause (1), the Board, upon application made by the Permittee on or before July 1, 1968, and upon being satisfied that it has entered into additional contracts to purchase propane at the plants named in clause 3 of these terms and conditions, may stipulate greater maximum quantities for any of the third or subsequent twelve-month periods in place of those prescribed in subclause (1), but such greater maximum quantities shall not exceed 2,847,000 barrels for any twelve-month period.

3. The Permittee, for the purpose of this Permit, may purchase of otherwise acquire for removal from the Province, and there may be removed from the Province under the authority of this Permit, only propane obtained from the processing of gas at the following gas processing plants:

<u>Gas Processing Plant</u>	<u>Location</u>
Bonnie Glen	Section 17, Township 47, Range 27, West of the 4th Meridian
Crossfield	Section 2, Township 26, Range 29, West of the 4th Meridian
Harmattan	Section 27, Township 31, Range 4, West of the 5th Meridian
Judy Creek	Section 25, Township 64, Range 11, West of the 5th Meridian

Leduc-Woodbend	Section 34, Township 50, Range 26, West of the 4th Meridian
Nevis	Section 22, Township 39, Range 22, West of the 4th Meridian
Pincher Creek	Section 23, Township 4, Range 29, West of the 4th Meridian
Rimbey	Section 5, Township 44, Range 1, West of the 5th Meridian
Turner Valley	Section 6, Township 20, Range 2, West of the 5th Meridian

4. (1) If, during the term of the Permit, the Permittee gives or receives notice of cancellation of any contract under which it purchases propane at a processing plant named in clause 3 of these terms and conditions, it shall forthwith notify the Board of the notice.

(2) Upon notification by the Permittee pursuant to subclause (1) or one month before cancellation of a contract pursuant to a notice referred to in subclause (1), whichever is later, the Board, by stipulation, shall reduce the volumes of propane that may be removed from the Province pursuant to this Permit during the balance of the term of the Permit by the volumes that the Permittee would have purchased under the contract if it had not been cancelled; but if the Permittee, before the issue of the stipulation, satisfies the Board that it has made an arrangement whereby it will acquire volumes of propane at any processing plant named in clause 3 of these terms and conditions to replace in whole or in part the propane that it would have purchased under the cancelled contract, and, where the arrangement is to acquire replacement

volumes at a processing plant other than that at which the propane covered by the cancelled contract was obtained, that the change in the source of the propane will not prejudice any public interest, then the volumes of propane that may be removed from the Province pursuant to this Permit shall not be reduced or shall be reduced only to the extent that the volumes of propane that the Permittee would have purchased under the cancelled contract have not been replaced, as the case may be.

5. Propane produced at processing plants other than those named in clause 3 of these terms and conditions acquired in Alberta by the Permittee may be removed from the Province under the authority of this Permit.

- (a) over a period of not more than three months in any year commencing October 1, and
- (b) in daily average volumes over the period not exceeding one-tenth of the volume that could be removed from the Province pursuant to this Permit if the annual volume were divided equally among the days in the year,

in substitution for equal volumes of propane produced at plants named in said clause 3, and the Permittee shall notify the Board of the substitution within ten days of its commencement.

6. The effective commencement of removal of propane from the Province pursuant to this Permit shall be on or before January 1, 1967, unless, upon application by the Permittee, a

later date is stipulated by the Board.

7. (1) All propane removed from the Province pursuant to this Permit shall be measured by or on behalf of the Permittee within the Province and in a manner satisfactory to the Board.

(2) The measurements required by this clause shall be reported monthly to the Board in a manner approved by the Board.

8. (1) The Permittee shall supply propane at a reasonable price to any community or consumer within the Province that is willing to take delivery of propane at a gas processing plant named in clause 3 of these terms and conditions and that, in the opinion of the Board, can reasonably be supplied by the Permittee.

(2) In the event that propane is removed from the Province pursuant to this Permit by pipe line, the Permittee shall supply propane at a reasonable price to any community or consumer within the Province that is willing to take delivery of propane at a point on the pipe line transmitting the propane within the Province, and that, in the opinion of the Board, can reasonably be supplied by the Permittee.

9. If any community or consumer is willing to take delivery of propane pursuant to clause 8 of these terms and conditions, and agreement on the price to be paid for the propane cannot be reached, the price to be paid shall be determined by the Public Utilities Board on the application

of an interested party.

10. Notwithstanding the provisions hereof, the Permittee shall comply with the provisions of any Act, competent regulation, order or direction governing the production, conservation, transportation, processing, purchasing, acquisition, sale, measurement, reporting, testing, supply or delivery of propane within the Province.

MADE at the City of Calgary, in the Province of
Alberta, this day of A.D. 1966.

OIL AND GAS CONSERVATION BOARD

G. W. Govier

Chairman

